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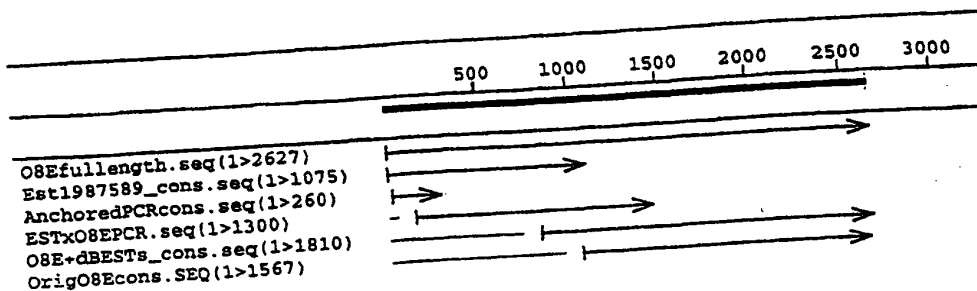
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(57) Abstract

Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

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COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

TECHNICAL FIELD

The present invention relates generally to ovarian cancer therapy. The invention is more specifically related to polypeptides comprising at least a portion of an ovarian carcinoma protein, and to polynucleotides encoding such polypeptides, as well as antibodies and immune system cells that specifically recognize such polypeptides. Such polypeptides, polynucleotides, antibodies and cells may be used in vaccines and pharmaceutical compositions for treatment of ovarian cancer.

10 BACKGROUND OF THE INVENTION

Ovarian cancer is a significant health problem for women in the United States and throughout the world. Although advances have been made in detection and therapy of this cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Management of the disease currently relies on a combination of early diagnosis and aggressive treatment, which may include one or more of a variety of treatments such as surgery, radiotherapy, chemotherapy and hormone therapy. The course of treatment for a particular cancer is often selected based on a variety of prognostic parameters, including an analysis of specific tumor markers. However, the use of established markers often leads to a result that is difficult to interpret, and high mortality continues to be observed in many cancer patients.

Immunotherapies have the potential to substantially improve cancer treatment and survival. Such therapies may involve the generation or enhancement of an immune response to an ovarian carcinoma antigen. However, to date, relatively few ovarian carcinoma antigens are known and the generation of an immune response against such antigens has not been shown to be therapeutically beneficial.

Accordingly, there is a need in the art for improved methods for identifying ovarian tumor antigens and for using such antigens in the therapy of ovarian cancer. The present invention fulfills these needs and further provides other related advantages.

SUMMARY OF THE INVENTION

Briefly stated, this invention provides compositions and methods for the therapy of cancer, such as ovarian cancer. In one aspect, the present invention provides polypeptides comprising an immunogenic portion of an ovarian carcinoma protein, or a
5 variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. Within certain embodiments, the ovarian carcinoma protein comprises a sequence that is encoded by a polynucleotide sequence selected from the group consisting of SEQ ID NOs:1-81, 313-331, 359, 366,
10 379, 385-387, 391 and complements of such polynucleotides.

The present invention further provides polynucleotides that encode a polypeptide as described above or a portion thereof, expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical
15 compositions and vaccines. Pharmaceutical compositions may comprise a physiologically acceptable carrier or excipient in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein
20 comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses
25 such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide. Vaccines may comprise a non-specific immune response enhancer in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with
30 ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a

polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an anti-idiotypic antibody that is specifically bound by an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for stimulating and/or expanding T cells, comprising contacting T cells with (a) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-387 or 391; (b) a polynucleotide encoding such a polypeptide, and/or (c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Such polypeptide, polynucleotide and/or antigen presenting cell(s) may be present within a pharmaceutical composition or vaccine, for use in stimulating and/or expanding T cells in a mammal.

Within other aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared as described above.

Within further aspects, the present invention provides methods for
5 inhibiting the development of ovarian cancer in a patient, comprising the steps of: (a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-
10 specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs: 1-387 or 391; (ii) a polynucleotide encoding such a polypeptide; or (iii) an antigen-presenting cell that expresses such a polypeptide; such that T cells proliferate; and (b) administering to the patient an
15 effective amount of the proliferated T cells, and thereby inhibiting the development of ovarian cancer in the patient. The proliferated cells may be cloned prior to administration to the patient.

The present invention also provides, within other aspects, methods for identifying secreted tumor antigens. Such methods comprise the steps of: (a)
20 implanting tumor cells in an immunodeficient mammal; (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum; (c) immunizing an immunocompetent mammal with the serum; (d) obtaining antiserum from the immunocompetent mammal; and (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor
25 antigen. A preferred method for identifying a secreted ovarian carcinoma antigen comprises the steps of: (a) implanting ovarian carcinoma cells in a SCID mouse; (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum; (c) immunizing an immunocompetent mouse with the serum; (d) obtaining antiserum from the immunocompetent mouse; and
30 (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1S (SEQ ID NOs:1-71) depict partial sequences of polynucleotides encoding representative secreted ovarian carcinoma antigens.

Figures 2A-2C depict full insert sequences for three of the clones of Figure 1. Figure 2A shows the sequence designated O7E (11731; SEQ ID NO:72),
10 Figure 2B shows the sequence designated O9E (11785; SEQ ID NO:73) and Figure 2C shows the sequence designated O8E (13695; SEQ ID NO:74).

Figure 3 presents results of microarray expression analysis of the ovarian carcinoma sequence designated O8E.

Figure 4 presents a partial sequence of a polynucleotide (designated 3g;
15 SEQ ID NO:75) encoding an ovarian carcinoma sequence that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX and osteonectin.

Figure 5 presents the ovarian carcinoma polynucleotide designated 3f (SEQ ID NO:76).

Figure 6 presents the ovarian carcinoma polynucleotide designated 6b
20 (SEQ ID NO:77).

Figures 7A and 7B present the ovarian carcinoma polynucleotides designated 8e (SEQ ID NO:78) and 8h (SEQ ID NO:79).

Figure 8 presents the ovarian carcinoma polynucleotide designated 12c (SEQ ID NO:80).

Figure 9 presents the ovarian carcinoma polynucleotide designated 12h
25 (SEQ ID NO:81).

Figure 10 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 3f.

Figure 11 depicts results of microarray expression analysis of the ovarian
30 carcinoma sequence designated 6b.

Figure 12 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 8e.

Figure 13 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12c.

5 Figure 14 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12h.

Figures 15A-15EEE depict partial sequences of additional polynucleotides encoding representative secreted ovarian carcinoma antigens (SEQ ID NOs:82-310).

10 Figure 16 is a diagram illustrating the location of various partial O8E sequences within the full length sequence.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy of cancer, such as ovarian cancer. The
15 compositions described herein may include immunogenic polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies that bind to a polypeptide, antigen presenting cells (APCs) and/or immune system cells (*e.g.*, T cells).

Polypeptides of the present invention generally comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof. Certain
20 ovarian carcinoma proteins have been identified using an immunoassay technique, and are referred to herein as ovarian carcinoma antigens. An "ovarian carcinoma antigen" is a protein that is expressed by ovarian tumor cells (preferably human cells) at a level that is at least two fold higher than the level in normal ovarian cells. Certain ovarian carcinoma antigens react detectably (within an immunoassay, such as an ELISA or
25 Western blot) with antisera generated against serum from an immunodeficient animal implanted with a human ovarian tumor. Such ovarian carcinoma antigens are shed or secreted from an ovarian tumor into the sera of the immunodeficient animal. Accordingly, certain ovarian carcinoma antigens provided herein are secreted antigens. Certain nucleic acid sequences of the subject invention generally comprise a DNA or

RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence.

The present invention further provides ovarian carcinoma sequences that are identified using techniques to evaluate altered expression within an ovarian tumor.

5 Such sequences may be polynucleotide or protein sequences. Ovarian carcinoma sequences are generally expressed in an ovarian tumor at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in normal ovarian tissue, as determined using a representative assay provided herein. Certain partial ovarian carcinoma polynucleotide sequences are presented herein. Proteins encoded by
10 genes comprising such polynucleotide sequences (or complements thereof) are also considered ovarian carcinoma proteins.

Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to at least a portion of an ovarian carcinoma polypeptide as described herein. T cells that may be employed within the
15 compositions provided herein are generally T cells (*e.g.*, CD4⁺ and/or CD8⁺) that are specific for such a polypeptide. Certain methods described herein further employ antigen-presenting cells (such as dendritic cells or macrophages) that express an ovarian carcinoma polypeptide as provided herein.

20 OVARIAN CARCINOMA POLYNUCLEOTIDES

Any polynucleotide that encodes an ovarian carcinoma protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides, and more preferably at least 45
25 consecutive nucleotides, that encode a portion of an ovarian carcinoma protein. More preferably, a polynucleotide encodes an immunogenic portion of an ovarian carcinoma protein, such as an ovarian carcinoma antigen. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic,
30 cDNA or synthetic) or RNA molecules. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a

polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes an ovarian carcinoma protein or a portion thereof) or may
5 comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native ovarian carcinoma protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity,
10 more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native ovarian carcinoma protein or a portion thereof.

The percent identity for two polynucleotide or polypeptide sequences may be readily determined by comparing sequences using computer algorithms well
15 known to those of ordinary skill in the art, such as Megalign, using default parameters. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, or 40 to about 50, in which a sequence
20 may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned. Optimal alignment of sequences for comparison may be conducted, for example, using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. Preferably, the percentage of sequence identity is determined by
25 comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the window may comprise additions or deletions (*i.e.*, gaps) of 20 % or less, usually 5 to 15 %, or 10 to 12%, relative to the reference sequence (which does not contain additions or deletions). The percent identity may be calculated by determining the number of
30 positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched

positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native ovarian carcinoma protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, an ovarian carcinoma polynucleotide may be identified, as described in more detail below, by screening a late passage ovarian tumor expression library with antisera generated against sera of immunocompetent mice after injection of such mice with sera from SCID mice implanted with late passage ovarian tumors. Ovarian carcinoma polynucleotides may also be identified using any of a variety of techniques designed to evaluate differential gene expression. Alternatively, polynucleotides may be amplified from cDNA prepared from ovarian tumor cells. Such polynucleotides may be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific

primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (e.g., an ovarian carcinoma cDNA library) using well known techniques.

5 Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

10 For hybridization techniques, a partial sequence may be labeled (e.g., by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (see Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor
15 Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The
20 complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining
25 a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target
30 sequence at temperatures of about 68°C to 72°C. The amplified region may be

sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment in the
5 known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of
10 amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Additional techniques include capture PCR (Lagerstrom et al., *PCR Methods Applic.* 1:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res.* 19:3055-60,
15 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be
20 performed using well known programs (*e.g.*, NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding portions of ovarian carcinoma antigens are provided in Figures 1A-1S (SEQ ID NOS:1 to 71) and Figures 15A to 15EEE (SEQ ID NOS:82 to 310). The sequences provided in Figures
25 1A-1S appear to be novel. For sequences in Figures 15A-15EEE, database searches revealed matches having substantial identity. These polynucleotides were isolated by serological screening of an ovarian tumor cDNA expression library, using a technique designed to identify secreted tumor antigens. Briefly, a late passage ovarian tumor expression library was prepared from a SCID-derived human ovarian tumor (OV9334)
30 in the vector λ -screen (Novagen). The sera used for screening were obtained by injecting immunocompetent mice with sera from SCID mice implanted with one late

passage ovarian tumors. This technique permits the identification of cDNA molecules that encode immunogenic portions of secreted tumor antigens.

The polynucleotides recited herein, as well as full length polynucleotides comprising such sequences, other portions of such full length polynucleotides, and
5 sequences complementary to all or a portion of such full length molecules, are specifically encompassed by the present invention. It will be apparent to those of ordinary skill in the art that this technique can also be applied to the identification of antigens that are secreted from other types of tumors.

Other nucleic acid sequences of cDNA molecules encoding portions of
10 ovarian carcinoma proteins are provided in Figures 4-9 (SEQ ID NOs:75-81), as well as SEQ ID NOs:313-384. These sequences were identified by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in an ovarian tumor than in normal ovarian tissue, as determined using a representative assay provided herein). Such screens were performed using a Synteni microarray (Palo
15 Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). SEQ ID NOs:311 and 391 provide full length sequences incorporating certain of these nucleic acid sequences.

Any of a variety of well known techniques may be used to evaluate
20 tumor-associated expression of a cDNA. For example, hybridization techniques using labeled polynucleotide probes may be employed. Alternatively, or in addition, amplification techniques such as real-time PCR may be used (*see* Gibson et al., *Genome Research* 6:995-1001, 1996; Heid et al., *Genome Research* 6:986-994, 1996). Real-time PCR is a technique that evaluates the level of PCR product accumulation during
25 amplification. This technique permits quantitative evaluation of mRNA levels in multiple samples. Briefly, mRNA is extracted from tumor and normal tissue and cDNA is prepared using standard techniques. Real-time PCR may be performed, for example, using a Perkin Elmer/Applied Biosystems (Foster City, CA) 7700 Prism instrument. Matching primers and fluorescent probes may be designed for genes of interest using,
30 for example, the primer express program provided by Perkin Elmer/Applied Biosystems (Foster City, CA). Optimal concentrations of primers and probes may be initially

determined by those of ordinary skill in the art, and control (*e.g.*, β -actin) primers and probes may be obtained commercially from, for example, Perkin Elmer/Applied Biosystems (Foster City, CA). To quantitate the amount of specific RNA in a sample, a standard curve is generated alongside using a plasmid containing the gene of interest.

5 Standard curves may be generated using the Ct values determined in the real-time PCR, which are related to the initial cDNA concentration used in the assay. Standard dilutions ranging from 10^{-10} to 10^{-6} copies of the gene of interest are generally sufficient. In addition, a standard curve is generated for the control sequence. This permits standardization of initial RNA content of a tissue sample to the amount of control for

10 comparison purposes.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-

15 directed site-specific mutagenesis (*see* Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding an ovarian carcinoma antigen, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide,

20 as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo*.

A portion of a sequence complementary to a coding sequence (*i.e.*, an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced

25 into cells or tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of an ovarian carcinoma protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory

30 molecules (*see* Gee et al., *In Huber and Carr, Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994). Alternatively, an antisense molecule

may be designed to hybridize with a control region of a gene (*e.g.*, promoter, enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

Any polynucleotide may be further modified to increase stability *in vivo*.

5 Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl-, methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation
15 vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to
20 permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not
25 limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (*e.g.*, avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a
30 receptor on a specific target cell, to render the vector target specific. Targeting may

also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

10 OVARIAN CARCINOMA POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof, as described herein. As noted above, certain ovarian carcinoma proteins are ovarian carcinoma antigens that are expressed by ovarian tumor cells and react detectably within an immunoassay (such as an ELISA) with antisera generated against serum from an immunodeficient animal implanted with an ovarian tumor. Other ovarian carcinoma proteins are encoded by ovarian carcinoma polynucleotides recited herein. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of an antigen that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid residues of an ovarian carcinoma protein or a variant thereof. Preferred immunogenic portions are encoded by cDNA molecules isolated as described herein. Further immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for the ability to react with ovarian carcinoma protein-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "ovarian carcinoma

protein-specific" if they specifically bind to an ovarian carcinoma protein (*i.e.*, they react with the ovarian carcinoma protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera, antibodies and T cells may be prepared as described herein, and using well known techniques. An immunogenic

5 portion of a native ovarian carcinoma protein is a portion that reacts with such antisera, antibodies and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length protein. Such screens may generally be

10 performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies

15 detected using, for example, ¹²⁵I-labeled Protein A.

As noted above, a composition may comprise a variant of a native ovarian carcinoma protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native ovarian carcinoma protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide

20 is not substantially diminished. In other words, the ability of a variant to react with ovarian carcinoma protein-specific antisera may be enhanced or unchanged, relative to the native ovarian carcinoma protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native ovarian carcinoma protein. Such variants may generally be identified by modifying one of the above polypeptide

25 sequences and evaluating the reactivity of the modified polypeptide with ovarian carcinoma protein-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been

30 removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity to the native polypeptide. Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydrophobic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydrophobic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host

cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available
5 filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids,
10 and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am.*
15 *Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Applied BioSystems, Inc. (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises one
20 polypeptide as described herein and a known tumor antigen, such as an ovarian carcinoma protein or a variant of such a protein. A fusion partner may, for example, assist in providing T-helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain
25 preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

30 Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a

recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is
5 ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the
10 second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a
15 secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as
20 linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to
25 separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and
30 transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (*see, for example, Stoute et al. New Engl. J. Med.*, 336:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenza B* (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (*e.g.*, the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen present cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the *LytA* gene; *Gene* 43:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (*see Biotechnology* 10:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

10 BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to an ovarian carcinoma protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to an ovarian carcinoma protein if it reacts at a detectable level (within, for example, an ELISA) with an ovarian carcinoma protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a "complex" is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant may be determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as ovarian cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to an ovarian carcinoma antigen will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological

samples (e.g., blood, sera, leukophoresis, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the

desired specificity (*i.e.*, reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ^{90}Y , ^{123}I , ^{125}I , ^{131}I , ^{186}Re , ^{188}Re , ^{211}At , and ^{212}Bi . Preferred drugs include

methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria toxin, cholera toxin, gelonin, *Pseudomonas* exotoxin, *Shigella* toxin, and pokeweed antiviral protein.

5 A therapeutic agent may be coupled (*e.g.*, covalently bonded) to a suitable monoclonal antibody either directly or indirectly (*e.g.*, via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-
10 containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (*e.g.*, a halide) on the other.

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A
15 linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional
20 or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, *e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.

25 Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction
30 of a disulfide bond (*e.g.*, U.S. Patent No. 4,489,710, to Spitler), by irradiation of a photolabile bond (*e.g.*, U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of

derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler et al.).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

Also provided herein are anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein. Such antibodies may be raised against an antibody, or antigen-binding fragment thereof, that specifically binds to an

immunogenic portion of an ovarian carcinoma protein, using well known techniques. Anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein are those antibodies that bind to an antibody, or antigen-binding fragment thereof, that specifically binds to an immunogenic portion of an ovarian carcinoma protein, as described herein.

T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for an ovarian carcinoma protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be present within (or isolated from) bone marrow, peripheral blood or a fraction of bone marrow or peripheral blood of a mammal, such as a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human animals, cell lines or cultures.

T cells may be stimulated with an ovarian carcinoma polypeptide, polynucleotide encoding an ovarian carcinoma polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, an ovarian carcinoma polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for an ovarian carcinoma polypeptide if the T cells kill target cells coated with an ovarian carcinoma polypeptide or expressing a gene encoding such a polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be

accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (*e.g.*, by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with an ovarian carcinoma polypeptide
5 (200 ng/ml - 100 µg/ml, preferably 100 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells and/or contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (*e.g.*, TNF or IFN-γ) is indicative of T cell activation (*see* Coligan et al., Current
10 Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998). T cells that have been activated in response to an ovarian carcinoma polypeptide, polynucleotide or ovarian carcinoma polypeptide-expressing APC may be CD4⁺ and/or CD8⁺. Ovarian carcinoma polypeptide-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient or a related or
15 unrelated donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4⁺ or CD8⁺ T cells that proliferate in response to an ovarian carcinoma polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be
20 accomplished in a variety of ways. For example, the T cells can be re-exposed to an ovarian carcinoma polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize an ovarian carcinoma polypeptide. Alternatively, one or more T cells that proliferate in the presence of an ovarian carcinoma polypeptide can be expanded in number by cloning. Methods for
25 cloning cells are well known in the art, and include limiting dilution. Following expansion, the cells may be administered back to the patient as described, for example, by Chang et al., *Crit. Rev. Oncol. Hematol.* 22:213, 1996.

PHARMACEUTICAL COMPOSITIONS AND VACCINES

30 Within certain aspects, polypeptides, polynucleotides, binding agents and/or immune system cells as described herein may be incorporated into

pharmaceutical compositions or vaccines. Pharmaceutical compositions comprise one or more such compounds or cells and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds or cells and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance
5 that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (*e.g.*, polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and
10 adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound within the composition or vaccine.

15 A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Appropriate nucleic acid
20 expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface. In a preferred embodiment, the DNA may be introduced using a viral expression system (*e.g.*, vaccinia or other pox
25 virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., *PNAS* 86:317-321, 1989; Flexner et al., *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner et al., *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651;
30 EP 0,345,242; WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld et al., *Science* 252:431-434, 1991; Kolls et al., *PNAS* 91:215-219, 1994; Kass-Eisler et al.,

PNAS 90:11498-11502, 1993; Guzman et al., *Circulation* 88:2838-2848, 1993; and Guzman et al., *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science* 259:1745-1749, 5 1993 and reviewed by Cohen, *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier 10 will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. 15 For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (e.g., polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres 20 are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (e.g., neutral buffered saline or phosphate buffered saline), carbohydrates (e.g., glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (e.g., aluminum hydroxide) 25 and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. 30 Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune

responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI), Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ), alum, biodegradable
5 microspheres, monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN- γ , IL-2 and IL-12) tend to favor the
10 induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6, IL-10 and TNF- β) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is
15 predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type
20 response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). Also preferred is AS-2 (SmithKline Beecham). CpG-containing oligonucleotides (in which the CpG
25 dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the
30 combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO

96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a
5 combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (*i.e.*, a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example,
10 oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively
15 constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within
20 pharmaceutical compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve
25 activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e.*, matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

30 Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent

APCs (Banchereau and Steinman, *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (see Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*,
5 with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified
10 dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (see Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph
15 nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF α to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into
20 dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF α , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized
25 phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc γ receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these
30 markers, but a high expression of cell surface molecules responsible for T cell

activation such as class I and class II MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a ovarian carcinoma antigen (or portion or other variant thereof) such that the antigen, or
5 an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex*
10 *vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the polypeptide, DNA (naked or within a plasmid vector) or RNA;
15 or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

20

CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as ovarian cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a
25 patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. Within certain preferred embodiments, a patient is afflicted with ovarian cancer. Such cancer may be diagnosed
30 using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or

following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous
5 host immune system to react against tumors with the administration of immuno response-modifying agents (such as tumor vaccines, bacterial adjuvants and/or cytokines).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established
10 tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T lymphocytes (such as CD8⁺ cytotoxic T lymphocytes and CD4⁺ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and
15 antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and
20 in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture
25 conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage
30 or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example,

antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be
5 induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (*see*, for example, Cheever et al., *Immunological Reviews* 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into stem cells taken from a patient and clonally propagated *in vitro* for
10 autologous transplant back into the same patient.

Routes and frequency of administration, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (*e.g.*, intracutaneous, intramuscular, intravenous or subcutaneous), intranasally
15 (*e.g.*, by aspiration), orally or in the bed of a resected tumor. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described
20 above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (*i.e.*, untreated) level. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical
25 outcome (*e.g.*, more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 μ g to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically
30 range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to an ovarian carcinoma antigen generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

10

SCREENS FOR IDENTIFYING SECRETED OVARIAN CARCINOMA ANTIGENS

The present invention provides methods for identifying secreted tumor antigens. Within such methods, tumors are implanted into immunodeficient animals such as SCID mice and maintained for a time sufficient to permit secretion of tumor antigens into serum. In general, tumors may be implanted subcutaneously or within the gonadal fat pad of an immunodeficient animal and maintained for 1-9 months, preferably 1-4 months. Implantation may generally be performed as described in WO 97/18300. The serum containing secreted antigens is then used to prepare antisera in immunocompetent mice, using standard techniques and as described herein. Briefly, 50-100 μ L of sera (pooled from three sets of immunodeficient mice, each set bearing a different SCID-derived human ovarian tumor) may be mixed 1:1 (vol:vol) with an appropriate adjuvant, such as RIBI-MPL or MPL + TDM (Sigma Chemical Co., St. Louis, MO) and injected intraperitoneally into syngeneic immunocompetent animals at monthly intervals for a total of 5 months. Antisera from animals immunized in such a manner may be obtained by drawing blood after the third, fourth and fifth immunizations. The resulting antiserum is generally pre-cleared of *E. coli* and phage antigens and used (generally following dilution, such as 1:200) in a serological expression screen.

The library is typically an expression library containing cDNAs from one or more tumors of the type that was implanted into SCID mice. This expression library may be prepared in any suitable vector, such as λ -screen (Novagen). cDNAs that

encode a polypeptide that reacts with the antiserum may be identified using standard techniques, and sequenced. Such cDNA molecules may be further characterized to evaluate expression in tumor and normal tissue, and to evaluate antigen secretion in patients.

5 The methods provided herein have advantages over other methods for tumor antigen discovery. In particular, all antigens identified by such methods should be secreted or released through necrosis of the tumor cells. Such antigens may be present on the surface of tumor cells for an amount of time sufficient to permit targeting and killing by the immune system, following vaccination.

10

METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more ovarian carcinoma proteins and/or polynucleotides encoding such proteins in a biological sample (such as blood, sera, urine and/or tumor biopsies) obtained from
15 the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as ovarian cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of protein that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA
20 encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, an ovarian carcinoma-associated sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. *See, e.g.,*
25 Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

30 In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length ovarian carcinoma proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S. Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about

10 μg , and preferably about 100 ng to about 1 μg , is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with
5 both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (*see, e.g.,* Pierce Immunotechnology Catalog and Handbook, 1991, at
10 A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody.
15 Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

20 More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20TM (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to
25 bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.,* incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with ovarian cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least
30 about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve

equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support
5 with an appropriate buffer, such as PBS containing 0.1% Tween 20™. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide.
10 An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are
15 generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of
20 the reaction products.

To determine the presence or absence of a cancer, such as ovarian cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is
25 the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical*
30 *Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot

of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a
5 signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

10 In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution
15 containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent.
20 Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the
25 biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 µg, and more preferably from about 50 ng to about
30 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use
5 ovarian carcinoma polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such ovarian carcinoma protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with an ovarian carcinoma protein in a biological sample.
10 Within certain methods, a biological sample comprising CD4⁺ and/or CD8⁺ T cells isolated from a patient is incubated with an ovarian carcinoma protein, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated
15 T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with an ovarian carcinoma protein (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of ovarian carcinoma protein to serve as a control. For
20 CD4⁺ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8⁺ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

25 As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding an ovarian carcinoma protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of an ovarian carcinoma protein cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is
30 specific for (*i.e.*, hybridizes to) a polynucleotide encoding the ovarian carcinoma protein. The amplified cDNA is then separated and detected using techniques well

known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding an ovarian carcinoma protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

5 To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding an ovarian carcinoma protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably,
10 oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous
15 nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence provided herein. Techniques for both PCR based assays and hybridization assays are well known in the art (*see*, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

20 One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample such as a biopsy tissue and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification
25 may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered
30 positive.

In another embodiment, ovarian carcinoma proteins and polynucleotides encoding such proteins may be used as markers for monitoring the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide detected by the binding agent increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide either remains constant or decreases with time.

Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

As noted above, to improve sensitivity, multiple ovarian carcinoma protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to an ovarian carcinoma protein. Such antibodies or fragments may be provided attached to a support material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively,

contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding an ovarian carcinoma protein in a biological sample. Such kits generally
5 comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding an ovarian carcinoma protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second
10 oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a polynucleotide encoding an ovarian carcinoma protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLES

Example 1Identification of Representative Ovarian Carcinoma Protein cDNAs

5

This Example illustrates the identification of cDNA molecules encoding ovarian carcinoma proteins.

Anti-SCID mouse sera (generated against sera from SCID mice carrying late passage ovarian carcinoma) was pre-cleared of E. coli and phage antigens and used
10 at a 1:200 dilution in a serological expression screen. The library screened was made from a SCID-derived human ovarian tumor (OV9334) using a directional RH oligo(dT) priming cDNA library construction kit and the λ Screen vector (Novagen). A bacteriophage lambda screen was employed. Approximately 400,000 pfu of the amplified OV9334 library were screened.

15 196 positive clones were isolated. Certain sequences that appear to be novel are provided in Figures 1A-1S and SEQ ID NOs:1 to 71. Three complete insert sequences are shown in Figures 2A-2C (SEQ ID NOs:72 to 74). Other clones having known sequences are presented in Figures 15A-15EEE (SEQ ID NOs:82 to 310). Database searches identified the following sequences that were substantially identical to
20 the sequences presented in Figures 15A-15EEE.

These clones were further characterized using microarray technology to determine mRNA expression levels in a variety of tumor and normal tissues. Such analyses were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions. PCR amplification products were arrayed on slides, with
25 each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes and the slides were scanned to measure fluorescence intensity. Data was analyzed using Synteni's provided GEMtools software. The results for one clone (13695, also referred
30 to as O8E) are shown in Figure 3.

Example 2

Identification of Ovarian Carcinoma cDNAs using Microarray Technology

5 This Example illustrates the identification of ovarian carcinoma polynucleotides by PCR subtraction and microarray analysis. Microarrays of cDNAs were analyzed for ovarian tumor-specific expression using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by
10 Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997).

A PCR subtraction was performed using a tester comprising cDNA of four ovarian tumors (three of which were metastatic tumors) and a driver of cDNA from five normal tissues (adrenal gland, lung, pancreas, spleen and brain). cDNA fragments
15 recovered from this subtraction were subjected to DNA microarray analysis where the fragments were PCR amplified, adhered to chips and hybridized with fluorescently labeled probes derived from mRNAs of human ovarian tumors and a variety of normal human tissues. In this analysis, the slides were scanned and the fluorescence intensity was measured, and the data were analyzed using Synteni's GEMtools software. In
20 general, sequences showing at least a 5-fold increase in expression in tumor cells (relative to normal cells) were considered ovarian tumor antigens. The fluorescent results were analyzed and clones that displayed increased expression in ovarian tumors were further characterized by DNA sequencing and database searches to determine the novelty of the sequences.

25 Using such assays, an ovarian tumor antigen was identified that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX (see Jin et al., *Cell* 93:81-91, 1998) and an extracellular matrix protein called osteonectin. A splice junction sequence exists at the fusion point. The sequence of this clone is presented in Figure 4 and SEQ ID NO:75. Osteonectin, unspliced and unaltered, was
30 also identified from such assays independently.

Further clones identified by this method are referred to herein as 3f, 6b, 8e, 8h, 12c and 12h. Sequences of these clones are shown in Figures 5 to 9 and SEQ ID NOs:76 to 81. Microarray analyses were performed as described above, and are presented in Figures 10 to 14. A full length sequence encompassing clones 3f, 6b, 8e and 12h was obtained by screening an ovarian tumor (SCID-derived) cDNA library. This 2996 base pair sequence (designated O772P) is presented in SEQ ID NO:311, and the encoded 914 amino acid protein sequence is shown in SEQ ID NO:312. PSORT analysis indicates a Type 1a transmembrane protein localized to the plasma membrane.

In addition to certain of the sequences described above, this screen identified the following sequences:

Sequence	Comments
OV4vG11 (SEQ ID NO:313)	human clone 1119D9 on chromosome 20p12
OV4vB11 (SEQ ID NO:314)	human UWGC:y14c094 from chromosome 6p21
OV4vD9 (SEQ ID NO:315)	human clone 1049G16 chromosome 20q12-13.2
OV4vD5 (SEQ ID NO:316)	human KIAA0014 gene
OV4vC2 (SEQ ID NO:317)	human KIAA0084 gene
OV4vF3 (SEQ ID NO:318)	human chromosome 19 cosmid R31167
OV4VC1 (SEQ ID NO:319)	novel
OV4vH3 (SEQ ID NO:320)	novel
OV4vD2 (SEQ ID NO:321)	novel
O815P (SEQ ID NO:322)	novel
OV4vC12 (SEQ ID NO:323)	novel
OV4vA4 (SEQ ID NO:324)	novel
OV4vA3 (SEQ ID NO:325)	novel
OV4v2A5 (SEQ ID NO:326)	novel
O819P (SEQ ID NO:327)	novel
O818P (SEQ ID NO:328)	novel
O817P (SEQ ID NO:329)	novel
O816P (SEQ ID NO:330)	novel
Ov4vC5 (SEQ ID NO:331)	novel

Sequence	Comments
21721 (SEQ ID NO:332)	human lumican
21719 (SEQ ID NO:333)	human retinoic acid-binding protein II
21717 (SEQ ID NO:334)	human26S proteasome ATPase subunit
21654 (SEQ ID NO:335)	human copine I
21627 (SEQ ID NO:336)	human neuron specific gamma-2 enolase
21623 (SEQ ID NO:337)	human geranylgeranyl transferase II
21621 (SEQ ID NO:338)	human cyclin-dependent protein kinase
21616 (SEQ ID NO:339)	human prepro-megakaryocyte potentiating factor
21612 (SEQ ID NO:340)	human UPH1
21558 (SEQ ID NO:341)	human RalGDS-like 2 (RGL2)
21555 (SEQ ID NO:342)	human autoantigen P542
21548 (SEQ ID NO:343)	human actin-related protein (ARP2)
21462 (SEQ ID NO:344)	human huntingtin interacting protein
21441 (SEQ ID NO:345)	human 90K product (tumor associated antigen)
21439 (SEQ ID NO:346)	human guanine nucleotide regulator protein (tim1)
21438 (SEQ ID NO:347)	human Ku autoimmune (p70/p80) antigen
21237 (SEQ ID NO:348)	human S-laminin
21436 (SEQ ID NO:349)	human ribophorin I
21435 (SEQ ID NO:350)	human cytoplasmic chaperonin hTRiC5
21425 (SEQ ID NO:351)	humanEMX2
21423 (SEQ ID NO:352)	human p87/p89 gene
21419 (SEQ ID NO:353)	human HPBRJ1-7
21252 (SEQ ID NO:354)	human T1-227H
21251 (SEQ ID NO:355)	human cullin I
21247 (SEQ ID NO:356)	kunitz type protease inhibitor (KOP)
21244-1 (SEQ ID NO:357)	human protein tyrosine phosphatase receptor F (PTPRF)
21718 (SEQ ID NO:358)	human LTR repeat
OV2-90 (SEQ ID NO:359)	novel

Sequence	Comments
Human zinc finger (SEQ ID NO:360)	
Human polyA binding protein (SEQ ID NO:361)	
Human pleitrophin (SEQ ID NO:362)	
Human PAC clone 278C19 (SEQ ID NO:363)	
Human LLRep3 (SEQ ID NO:364)	
Human Kunitz type protease inhib (SEQ ID NO:365)	
Human KIAA0106 gene (SEQ ID NO:366)	
Human keratin (SEQ ID NO:367)	
Human HIV-1TAR (SEQ ID NO:368)	
Human glia derived nexin (SEQ ID NO:369)	
Human fibronectin (SEQ ID NO:370)	
Human ECMproBM40 (SEQ ID NO:371)	
Human collagen (SEQ ID NO:372)	
Human alpha enolase (SEQ ID NO:373)	
Human aldolase (SEQ ID NO:374)	
Human transf growth factor BIG H3 (SEQ ID NO:375)	
Human SPARC osteonectin (SEQ ID NO:376)	
Human SLP1 leucocyte protease (SEQ ID NO:377)	
Human mitochondrial ATP synth (SEQ ID NO:378)	
Human DNA seq clone 461P17 (SEQ ID NO:379)	
Human dbpB pro Y box (SEQ ID NO:380)	
Human 40 kDa keratin (SEQ ID NO:381)	
Human arginosuccinate synth (SEQ ID NO:382)	
Human acidic ribosomal phosphoprotein (SEQ ID NO:383)	
Human colon carcinoma laminin binding pro (SEQ ID NO:384)	

This screen further identified multiple forms of the clone O772P, referred to herein as 21013, 21003 and 21008. PSORT analysis indicates that 21003 (SEQ ID NO:386; translated as SEQ ID NO:389) and 21008 (SEQ ID NO:387; translated as SEQ ID NO:390) represent Type 1a transmembrane protein forms of

O772P. 21013 (SEQ ID NO:385; translated as SEQ ID NO:388) appears to be a truncated form of the protein and is predicted by PSORT analysis to be a secreted protein.

Additional sequence analysis resulted in a full length clone for O8E
5 (2627 bp, which agrees with the message size observed by Northern analysis; SEQ ID NO:391). This nucleotide sequence was obtained as follows: the original O8E sequence (OrigO8Econs) was found to overlap by 33 nucleotides with a sequence from an EST clone (IMAGE#1987589). This clone provided 1042 additional nucleotides upstream of the original O8E sequence. The link between the EST and O8E was confirmed by
10 sequencing multiple PCR fragments generated from an ovary primary tumor library using primers to the unique EST and the O8E sequence (ESTxO8EPCR). Full length status was further indicated when anchored PCR from the ovary tumor library gave several clones (AnchoredPCR cons) that all terminated upstream of the putative start methionine, but failed to yield any additional sequence information. Figure 16 presents
15 a diagram that illustrates the location of each partial sequence within the full length O8E sequence.

Two protein sequences may be translated from the full length O8E. For "a" (SEQ ID NO:393) begins with a putative start methionine. A second form "b" (SEQ ID NO:392) includes 27 additional upstream residues to the 5' end of the nucleotide
20 sequence.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.
25

SUMMARY OF SEQUENCE LISTING

SEQ ID NOs:1-71 are ovarian carcinoma antigen polynucleotides shown in Figures 1A-1S.

SEQ ID NOs:72-74 are ovarian carcinoma antigen polynucleotides
30 shown in Figures 2A-2C.

SEQ ID NO:75 is the ovarian carcinoma polynucleotide 3g (Figure 4).

SEQ ID NO:76 is the ovarian carcinoma polynucleotide 3f (Figure 5).

SEQ ID NO:77 is the ovarian carcinoma polynucleotide 6b (Figure 6).

SEQ ID NO:78 is the ovarian carcinoma polynucleotide 8e (Figure 7A).

SEQ ID NO:79 is the ovarian carcinoma polynucleotide 8h (Figure 7B).

5 SEQ ID NO:80 is the ovarian carcinoma polynucleotide 12e (Figure 8).

SEQ ID NO:81 is the ovarian carcinoma polynucleotide 12h (Figure 9).

SEQ ID NOs:82-310 are ovarian carcinoma antigen polynucleotides shown in Figures 15A-15EEE.

10 SEQ ID NO:311 is a full length sequence of ovarian carcinoma polynucleotide O772P.

SEQ ID NO:312 is the O772P amino acid sequence.

SEQ ID NOs:313-384 are ovarian carcinoma antigen polynucleotides.

SEQ ID NOs:385-390 present sequences of O772P forms.

15 SEQ ID NO:391 is a full length sequence of ovarian carcinoma polynucleotide O8E.

SEQ ID NOs:392-393 are protein sequences encoded by O8E.

CLAIMS

1. An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides.

2. A polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of 1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of such polynucleotides.

3. An isolated polynucleotide encoding at least 5 amino acid residues of a polypeptide according to claim polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides

4. A polynucleotide according to claim 3, wherein the polynucleotide encodes an immunogenic portion of the polypeptide.

5. A polynucleotide according to claim 3, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

6. An isolated polynucleotide complementary to a polynucleotide according to claim 3.

7. An expression vector comprising a polynucleotide according to claim 3 or claim 6.

8. A host cell transformed or transfected with an expression vector according to claim 7.

9. A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.

10. A pharmaceutical composition according to claim 9, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

11. A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.

12. A vaccine according to claim 11, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

13. A pharmaceutical composition comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

(b) a physiologically acceptable carrier.

14. A pharmaceutical composition according to claim 13, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

15. A vaccine comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

16. A vaccine according to claim 15, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391.

17. A pharmaceutical composition comprising:

(a) an antibody that specifically binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
 - (ii) complements of such polynucleotides; and
- (b) a physiologically acceptable carrier.

18. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of an agent selected from the group consisting of:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding a polypeptide as recited in (a); and

(c) an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

and thereby inhibiting the development of ovarian cancer in the patient.

19. A method according to claim 18, wherein the agent is present within a pharmaceutical composition according to any one of claims 9, 13 or 17.
20. A method according to claim 18, wherein the agent is present within a vaccine according to any one of claims 11, 15 or 18.
21. A fusion protein comprising at least one polypeptide according to claim 1.
22. A polynucleotide encoding a fusion protein according to claim 21.
23. A pharmaceutical composition comprising a fusion protein according to claim 21 in combination with a physiologically acceptable carrier.
24. A vaccine comprising a fusion protein according to claim 21 in combination with a non-specific immune response enhancer.
25. A pharmaceutical composition comprising a polynucleotide according to claim 22 in combination with a physiologically acceptable carrier.
26. A vaccine comprising a polynucleotide according to claim 22 in combination with a non-specific immune response enhancer.
27. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 23 or claim 25.
28. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 23 or claim 26.

29. A pharmaceutical composition, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a pharmaceutically acceptable carrier or excipient.

30. A vaccine, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a non-specific immune response enhancer.

31. A vaccine comprising:

(a) an anti-idiotypic antibody or antigen-binding fragment thereof that is specifically bound by an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) non-specific immune response enhancer.

32. A vaccine according to claim 30 or claim 31, wherein the immune response enhancer is an adjuvant.

33. A pharmaceutical composition, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a physiologically acceptable carrier.

34. A vaccine, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a non-specific immune response enhancer.

35. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a pharmaceutical composition according to claim 29 or claim 33.

36. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a vaccine according to any one of claims 30, 31 or 34.

37. A method for stimulating and/or expanding T cells, comprising contacting T cells with:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding such a polypeptide; and/or

(c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38. A method according to claim 37, wherein the T cells are cloned prior to expansion.

39. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a pharmaceutical composition comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one

or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a physiologically acceptable carrier or excipient;

and thereby stimulating and/or expanding T cells in a mammal.

40. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a vaccine comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

- (b) a non-specific immune response enhancer;
and thereby stimulating and/or expanding T cells in a mammal.

41. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared according to the method of claim 39 or claim 40.

42. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD4⁺ T cells isolated from a patient with one or more of:

- (i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- complements of such polynucleotides;

- (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

- (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

- such that T cells proliferate; and

- (b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

43. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD4⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate;

(b) cloning one or more proliferated cells; and

(c) administering to the patient an effective amount of the cloned T cells.

44. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD8⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

- (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
 - or
 - (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;
- such that T cells proliferate; and
- (b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

45. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD8⁺ T cells isolated from a patient with one or more of:
 - (i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
 - polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - complements of such polynucleotides;
 - (ii) a polynucleotide encoding an ovarian carcinoma polypeptide;
 - or
 - (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;
- such that the T cells proliferate;
- (b) cloning one or more proliferated cells ; and
 - (c) administering to the patient an effective amount of the cloned T cells.

46. A method for identifying a secreted tumor antigen, comprising the steps of:

- (a) implanting tumor cells in an immunodeficient mammal;
- (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum;
- (c) immunizing an immunocompetent mammal with the serum;
- (d) obtaining antiserum from the immunocompetent mammal; and
- (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen.

47. A method according to claim 46, wherein the immunodeficient mammal is a SCID mouse and wherein the immunocompetent mammal is an immunocompetent mouse.

48. A method for identifying a secreted ovarian carcinoma antigen, comprising the steps of:

- (a) implanting ovarian carcinoma cells in a SCID mouse;
- (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum;
- (c) immunizing an immunocompetent mouse with the serum;
- (d) obtaining antiserum from the immunocompetent mouse; and
- (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

49. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
- (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and
- (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

50. A method according to claim 49, wherein the binding agent is an antibody.

51. A method according to claim 50, wherein the antibody is a monoclonal antibody.

52. A method according to claim 49, wherein the cancer is ovarian cancer.

53. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
 - (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

54. A method according to claim 53, wherein the binding agent is an antibody.

55. A method according to claim 54, wherein the antibody is a monoclonal antibody.

56. A method according to claim 53, wherein the cancer is ovarian cancer.

57. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

58. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

59. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

60. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

61. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

62. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

63. A diagnostic kit, comprising:

(a) one or more antibodies or antigen-binding fragments thereof that specifically bind to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides.; and

(b) a detection reagent comprising a reporter group.

64. A kit according to claim 63, wherein the antibodies are immobilized on a solid support.

65. A kit according to claim 63, wherein the solid support comprises nitrocellulose, latex or a plastic material.

66. A kit according to claim 63, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

67. A kit according to claim 63, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

68. A diagnostic kit, comprising:

(a) an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

(b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

SEQUENCE LISTING

<110> Corixa Corporation

<120> COMPOSITIONS AND METHODS FOR THE THERAPY AND
DIAGNOSIS OF OVARIAN CANCER

<130> 210121.462PC

<140> PCT

<141> 1999-12-17

<160> 393

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ttaggcaagt	cagaaagaga	acatggtcac	ccaaaagcaa	ctgtaactca	gaaattaagt	660
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ccttccttct	ggattcacca	attgttaaca	tttttttcct	ctcagctatc	cttctaattt	780
ctctctaatt	tcaatttggt	tatatttacc	tctgggctca	ataagggcat	ctgtgcagaa	840
atttggaagc	catttagaaa	atcttttgga	ttttcctgtg	gtttatggca	atatgaatgg	900
agcttattac	tggggtgagg	gacagcttac	tccatttgac	cagattgttt	ggctaacaca	960
tcccgaagaa	tgattttgtc	aggaattatt	gttatttaat	aaatatttca	ggatattttt	1020
cctctacaat	aaagtaacaa	t				1041

<210> 19

<211> 1043

<212> DNA

<213> Homo sapien

<400> 19

ctctgtggaa	aactgatgag	gaatgaat	accattaccc	atgttctcat	ccccaagcaa	60
agtgtctgggt	ctgattactg	caacacagag	aacgaagaag	aacttttcct	catacaggat	120
cagcagggcc	tcatcacact	gggctggatt	catactcacc	ccacacagac	cgcgtttctc	180
tccagtgtcg	acctacacac	tactgtctct	taccagatga	tggtgccaga	gtcagtagcc	240
attgtttgct	cccccaagtt	ccaggaaact	ggattcttta	aactaactga	ccatggacta	300
gaggagat	cttcctgtcg	ccagaaagga	tttcatccac	acagcaagga	tccacctctg	360
ttctgtagct	gcagccacgt	gactgttggt	gacagagcag	tgaccatcac	agaccttcga	420
tgagcgtttg	agtccaacac	cttccaagaa	caacaaaacc	atatcagtgt	actgtagccc	480
cttaatttaa	gctttctaga	aagctttgga	agtttttgta	gatagtagaa	aggggggcat	540
cacctgagaa	agagctgatt	ttgtatttca	ggtttgaaaa	gaaataactg	aacatatttt	600
ttaggcaagt	cagaaagaga	acatggtcac	ccaaaagcaa	ctgtaactca	gaaattaagt	660
tactcagaaa	ttaagtagct	cagaaattaa	gaaagaatgg	tataatgaac	ccccatatac	720
ccttccttct	ggattcacca	attgttaaca	tttttttcct	ctcagctatc	cttctaattt	780
ctctctaatt	tcaatttggt	tatatttacc	tctgggctca	ataagggcat	ctgtgcagaa	840
atttggaagc	catttagaaa	atcttttgga	ttttcctgtg	gtttatggca	atatgaatgg	900
agcttattac	tggggtgagg	gacagcttac	tccatttgac	cagattgttt	ggctaacaca	960
tcccgaagaa	tgattttgtc	aggaattatt	gttatttaat	aaatatttca	ggatattttt	1020
cctctacaat	aaagtaacaa	tta				1043

<210> 20

<211> 448

<212> DNA

<213> Homo sapien

<400> 20

ggacgacaag	gccatggcga	tatcggatcc	gaattcaagc	ctttggaatt	aaataaacct	60
ggaacagggg	aggtgaaagt	tggagtgaga	tgtcttccat	atctatacct	ttgtgcacag	120
ttgaatggga	actgtttggg	tttagggcat	cttagagttg	attgatggaa	aaagcagaca	180

ggaactggtg	ggaggtcaag	tggggaagtt	ggtgaatgtg	gaataactta	cctttgtgct	240
ccacttaaac	cagatgtggt	gcagctttcc	tgacatgcaa	ggatctactt	taattccaca	300
ctctcattaa	taaattgaat	aaaagggaat	gttttggcac	ctgatataat	ctgccaggct	360
atgtgacagt	aggaaggaat	ggtttccctt	aacaagccca	atgcactggt	ctgactttat	420
aaattattta	ataaaatgaa	ctattatc				448

<210> 21

<211> 411

<212> DNA

<213> Homo sapien

<400> 21

ggcagtgaca	ttcaccatca	tgggaaccac	cttccctttt	cttcaggatt	ctctgtagtg	60
gaagagagca	cccagtgttg	ggctgaaaac	atctgaaagt	agggagaaga	acctaaaata	120
atcagtatct	cagagggctc	taagggtgcc	agaagtctca	ctggacattt	aagtgccaac	180
aaaggcatac	tttcggaatc	gccaaagtcaa	aacttttctaa	cttctgtctc	tctcagagac	240
aagtgagact	caagagtcta	ctgctttagt	ggcaactaca	gaaaactggt	gttaccacaga	300
aaaacaggag	caattagaaa	tggttccaat	atttcaaagc	tccgcaaaca	ggatgtgctt	360
tcctttgccc	atttaggggt	tcttctcttt	cctttctctt	tattaaccac	t	411

<210> 22

<211> 896

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1) ... (896)

<223> n = A,T,C or G

<400> 22

tgcgctgaaa	acaacggcct	cctttactgt	taaaatgcag	ccacagggtgc	ttagccgtgg	60
gcattctcaac	caccagcctc	tgtggggggc	aggtgggctg	ccctgtgggc	ctctggggcc	120
acgtccagcc	tctgtcctct	gccttcgctt	cttcgacagt	gttcccggca	tccctggtca	180
cttggtactt	ggcgtggggc	tctgtgctg	ctccagcagc	tcctccaggn	ggtcggcccc	240
cttcaccgca	gcctcatgtt	gtgtccggag	gctgtctcag	gcctcctcct	tcctcgcgag	300
ggctgtcttc	accctccggn	gcacctcctc	cagctccagc	tgctggcggg	cctgcagcgt	360
ggccagctcg	gccttggcct	gccgcgtctc	ctcctcarag	gctgccagcc	ggtcctcgaa	420
ctcctggcgg	atcacctggg	ccagggttgc	gcgctcgcta	gaaagctgct	cgttcaccgc	480
ctgcgcattc	tccagcgccc	gtcctttctg	ccgcacaagg	ccctgcagac	gcagattctc	540
gccctcggcc	tccccaagct	ggcctttcag	ctccgagcac	cgctcctgaa	gcttccgctc	600
cgactgctcc	agctcggaga	gtcgggctc	gtacttgctc	cgtaagcgct	tgatgcggct	660
ctcggcagcc	ttctcactct	cctccttggc	cagcgccatg	tcggcctcca	gccggtgaat	720
gaccagctca	atctccttgt	cccgcccttt	ccgatttctt	tcctcagct	cctgttcccg	780
gttcagcagc	cacgcctcct	ccttcctggt	gcggccggcc	tcccacgctt	gcctctccag	840
ctccagctgc	tgcttcaggg	tattcagctc	catctggcgg	gcctgcagcg	tggcca	896

<210> 23

<211> 111

<212> DNA

<213> Homo sapien

<400> 23

caacttatta	cttgaaatta	taatatagcc	tgtccgtttg	ctgtttccag	gctgtgatat	60
attttcctag	tggtttgact	ttaaaaaata	ataaggttta	attttctccc	c	111

<210> 24
 <211> 531
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(531)
 <223> n = A,T,C or G

<400> 24
 tgcaagtcac gggagtttat ttatttaatt tttttcccca gatggagact ctgtcgccca 60
 ggctggagtg caatgggtgtg atcttggtct actgcaacct ccacctcctg gggtcaagcg 120
 attctcctgc cacagcctcc cgagtagctg ggattacagg tgcccgccac cacaccagc 180
 taatttttat atttttagta aagacagggg ttcccatgt tggccaggct ggtcttgaac 240
 ttctgacctc aggtgatcca cctgcctcgg cctcccaaag tgttgggatt acaggcgtga 300
 gctacccgtg cctggccagc cactggagtt taaaggacag tcatgttggc tccagcctaa 360
 ggcggcattt tcccccatca gaaagcccg ggctcctgta cctcaaaata gggcacctgt 420
 aaagtcagtc agtgaagtct ctgctctaac tggccaccgg gggccattgg cntctgacac 480
 agccttgcca ggangcctgc atctgcaaaa gaaaagtcca cttcctttcc g 531

<210> 25
 <211> 471
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(471)
 <223> n = A,T,C or G

<400> 25
 cagagaaatct kagaaagatg tcgcgttttc ttttaatgaa tgagagaagc ccatttgtat 60
 ccctgaatca ttgagaaaag gcggcggtgg cgacagcggc gacctaggga tcgatctgga 120
 gggacttggg gagcgtgcag agacctctag ctcgagcggc agggacctcc cgccgggatg 180
 cctggggagc agatggaccc tactggaagt cagttggatt cagatttctc tcagcaagat 240
 actccttgcc tgataattga agattctcag cctgaaagcc aggttctaga ggatgattct 300
 ggttctcact tcagtatgct atctcgacac cttcctaata tccagacgca caaagaaaat 360
 cctgtgttgg atgttgngtc caatccttga acaaacagct ggagaagaac gaggagaccg 420
 gtaatagtgg gttcaatgaa catttgaaag aaaaccaggt tgcagaccct g 471

<210> 26
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 26
 gactgtcctg aacaagggac ctctgaccag agagctgcag gagatgcaga gtggtggcag 60
 gagtgggaagc caaagaacac ccaccttcct cccttgaagg agtagagcaa ccatcagaag 120
 atactgtttt attgctctgg tcaaacaagt cttcctgagt tgacaaaacc tcaggctctg 180
 gtgacttctg aatctgcagt ccactttcca taagttcttg tgcagacaac tgttcttttg 240
 cttccatagc agcaacagat gctttggggc taaaaggcat gtcctctgac cttgcagggtg 300
 gtggattttg ctcttttaca acatgtacat cttactggg ctgtgctgtc acagggatgt 360
 ccttgctgga ctgttctgct atgggggatat cttcgttgga ctgttcttca tgcttaattg 420

cagtattagc atccacatca gacagcctgg tataaccaga gttggtggtt actgattgta 480
 gctgctcttt gtccacttca tatggcaca gtttttctt caacatcctg gctctgggaa 540
 g 541

<210> 27
 <211> 461
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(461)
 <223> n = A,T,C or G

<400> 27
 gaaatgtata tttaatcatt ctcttgaacg atcagaactc traaatcagt tttctataac 60
 arcattgtaac acagtcaccg tggctccaag gtccagggaag gcagtgggta acacatgaag 120
 agtgtgggaa gggggctgga aacaaagtat tcttttcctt caaagcttca ttcctcaagg 180
 cctcaattca agcagtcatt gtccttgctt tcaaaagtct gtgtgtgctt catggaagg 240
 atatgtttgt tgccttaatt tgaattgtgg ccagggaagg tctggagatc taaattcaga 300
 gtaagaaaac ctgagctaga actcaggcat ttctcttaca gaacttggct tgcagggtag 360
 aatgaangga aagaaactta gaagctcaac aagctgaaga taatcccatc aggcatctcc 420
 cataggcctt gcaactctgt tcaactgagag atgttatcct g 461

<210> 28
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 28
 agtctggagt gagcaaaca gagcaagaaa caarragaag ccaaaagcag aaggctccaa 60
 tatgaacaag ataaatctat cttcaaagac atattagaag ttgggaaaat aattcatgtg 120
 aactagacaa gtgtgttaag agtgataagt aaaatgcacg tggagacaag tgcattccca 180
 gatctcaggg acctccccct gctgtcacc tggggagtga gaggacagga tagtgcattg 240
 tctttgtctc tgaattttta gttatatgtg ctgtaattgt gctctgagga agccccctga 300
 aagtctatcc caacatatcc acatcttata tccacaaaat taagctgtag tatgtaccct 360
 aagacgctgc taattgactg ccacttcgca actcaggggc ggctgcattt tagtaatggg 420
 tcaaattgatt cactttttat gatgcttccc aagggtgcctt ggcttctctt cccaactgac 480
 aaatgcccaa gttgagaaaa atgatcataa ttttagcata aaccgagcaa tcggcgaccc 540
 c 541

<210> 29
 <211> 411
 <212> DNA
 <213> Homo sapien

<400> 29
 tagctgtctt cctcactctt atggcaatga ccccatatct taatggatta agataatgaa 60
 agtgtatttc ttacactctg tatctatcac cagaagctga ggtgatagcc cgcttgctat 120
 tgtcatccat attctgggac tcaggcgagg actttctgga atattgccag ggagcatggc 180
 agaggggcac agtgcattct gggggaatgc acattggctc agcctgggta atgagtgata 240
 tacattacct ctgttcacaa ctcatgtccc agcaccagtc acaaggcccc accaaatacc 300
 agagcccaag aaatgtagtc ctgttgatat ggttttgctg tgtcccaacc caaatctcat 360
 cttgaattgt aagctcccat aattcccatg tgttgtggga gggacctggg g 411

<210> 30
 <211> 511
 <212> DNA
 <213> Homo sapien

<400> 30
 atcatgagga tgttacaaa gggatggtac taaaccattt gtattcgtct gttttcacac 60
 tgctttgaag atactacctg agactgggta atttataaac aaaagagatt taattgactc 120
 acagtctctg atggctgaag aggcctcagg aaacttacag tcatggtgga aggcaaagga 180
 ggagcaaggc atgtcttaca tgtcagtagg agagagagcg agagcaggag aacctgccac 240
 ttataaacca ttcagatctc ataactccct atcatgagaa aaacatggag gaaaccaccc 300
 tcatgatcca atcacctccc gccagggtccc tccctcgaca cgtggggatt ataattcagg 360
 attagaggga cacagagaca aaccatatca tcattcatga gaaatccacc ctcatagtc 420
 aatcagctcc taccaggccc cacctccaac actggggatt gcaattcaac atgagatttg 480
 gatggggaca cagattcaaa ccatatcata c 511

<210> 31
 <211> 827
 <212> DNA
 <213> Homo sapien

<400> 31
 catggccttt ctcttagag gccagaggtg ctgccctggc tgggagtga gctccaggca 60
 ctaccagctt tcctgatttt cccgtttggt ccatgtgaag agctaccacg agccccagcc 120
 tcacagtgtc cactcaaggg cagcttggtc ctcttgctct gcagaggcag gctggtgtga 180
 ccctgggaac ttgaccggg aacaacaggt ggcccagagt gagtgtggcc tggccccctca 240
 acctagtgtc cgtctctctc tctcctggag ccagtcttga gtttaaaggc attaagtgtt 300
 agatacaagc tccttgtggc tggaaaaaca cccctctgct gataaagctc agggggcact 360
 gaggaagcag aggcccttg ggggtgccct cctgaagaga gcgtcaggcc atcagctctg 420
 tccctctggt gctccacagt ctgttctca cctccatct ctgggagcag ctgcacctga 480
 ctggccacgc gggggcagtg gaggcacagg ctccagggtg ccgggctacc tggcacccta 540
 tggcttaca agtagagttg gcccagtttc cttccacctg aggggagcac tctgactcct 600
 aacagtcttc cttgccctgc catcatctgg ggtggctggc tgtcaagaaa ggccgggcat 660
 gctttctaaa cacagccaca ggaggcttg agggcatctt ccagggtggg aaacagtctt 720
 agataagtaa ggtgacttgc ctaaggcctc ccagcaccct tgatcttgga gtctcacagc 780
 agactgcatg tsaacaactg gaaccgaaaa catgcctcag tataaaa 827

<210> 32
 <211> 291
 <212> DNA
 <213> Homo sapien

<400> 32
 ccagaacctc cttctctttg gagaatggg aggcctcttg gagacacaga gggtttcacc 60
 ttggatgacc tctagagaaa ttgcccaaga agccacctt ctggtcccaa cctgcagacc 120
 ccacagcagt cagttggtca ggccctgctg tagaaggta cttggctcca ttgectgctt 180
 ccaaccaatg ggcaggagag aaggccttta tttctgccc acccattctc ctgtaccagc 240
 acctccgttt tcagtcagygt ttgtccagca acggtaccgt ttacacagtc a 291

<210> 33
 <211> 491
 <212> DNA
 <213> Homo sapien

<400> 33

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tgcatgtagt tttatttatg tgttttsgtc tggaaaacca agtgtcccag cagcatgact      60
gaâcatcact cacttcccct acttgatcta caaggccaac gccgagagcc cagaccagga      120
ttccaaacac actgcacgag aatattgtgg atcogctgtc aggttaagtgt ccgtcactga      180
cccaracgct gttacgtggc acatgactgt acagtgccac gtaacagcac tgtacttttc      240
tcccataaac agttacctgc catgtatcta catgattcag aacattttga acagttaatt      300
ctgacacttg aataatccca tcaaaaaccg taaaatcact ttgatgtttg taacgacaac      360
atagcatcac tttagcacag aatcatctgg aaaaacagaa caacgaatac atacatctta      420
aaaaatgctg ggggtgggcca ggcacagctt cagcctgtga atcccagcac tttgggaggg      480
ttaagcgggt g

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<210> 34
<211> 521
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

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```

<400> 34
tggggcgga aagaagccaag gccaaaggagc tgggtgcggca gctgcagctg gaggccgagg      60
agcagaggaa gcagaagaag cggcagagtg tgtcgggcct gcacagatac cttcacttgc      120
tggatggaaa tgaaaattac ccgtgtcttg tggatgcaga cggatgatgtg atttccttcc      180
caccaataac caacagttag aagacaaaagg ttaagaaaaac gacttctgat ttgttttttg      240
aagtaacaag tgccaccagt ctgcagattt gcaaggatgt catggatgcc ctcatcttga      300
aaatggcaag aaatgaaaaa gtacacttta gaaaataaag aggaaggatc actctcagat      360
actgaagccg atgcagcttc tggacaactt ccagatccca caacgaatcc cagtgtctgga      420
aaggacgggc ccttccttct ggtggtggaa cangtcccgg tggatgatct tggaanggaa      480
cctgaangtg gtgtaccccg tccaaggccg accttgacca c

```

```

<210> 35
<211> 161
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(161)
<223> n = A,T,C or G

```

```

<400> 35
tcccgcgctc gcagggcncg tgccacctgc cygtccgcc gctcgtctgc tgcgccgccg      60
cgccgcgctg ccgaccgyca gcatgetgcc gagagtgggc tgccccgcgc tgccgctgcc      120
gccgccgccg ctgctgccgc tgctgccgct gctgctgctg c

```

```

<210> 36
<211> 341
<212> DNA
<213> Homo sapien

```

```

<400> 36
ggcgggtagg catggaactg agaagaacga agaagctttc agactacgtg gggaagaatg      60
aaaaaaccaa aattatcgcc aagattcagc aaaggggaca gggagctcca gcccagagac      120
ctattattag cagtggaggag cagaagcagc tgatgctgta ctatcacaga agacaagagg      180

```

```

agctcaagag attggaagaa aatgatgatg atgcctatTT aaactcacca tgggcggata      240
acactgcttt gaaaagacat tttcatggag tgaaagacat aaagtggaga ccaagatgaa      300
gttcaccagc tgatgacact tccaaagaga ttagctcacc t                          341

```

<210> 37

<211> 521

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(521)

<223> n = A,T,C or G

<400> 37

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tctgaagggtt aaatgtttca tctaaatagg gataatgrta aacacctata gcatagagtt      60
gtttgagatt aaatgagata atacatgtaa aattatgtgc ctggcataca gcaagattgt      120
tggtgtgtgt gatgatgatg atgatgatga taatatTTTT ctatccccag tgcacaactg      180
cttgaacctt ttagataatc aatacatggt tcttgaactg agatcaattt ccccatgttg      240
tctgactgat gaagccctac attttcttct agaggagatg acatttgagc aagatcttaa      300
agaaaatcag atgccttcac ctgaccactg cttggtgatc ccatggcact ttgtacatct      360
ctccattagc tctcatctca ccagcccatc attattgtat gtgctgcctt ctgaagcttg      420
cagctggcta ccatcmggtg gaataaaaat catcctttca taaaatagtg accctccttt      480
tttatttgca tttcccaaag ccaagcaccg tggganggta g                          521

```

<210> 38

<211> 461

<212> DNA

<213> Homo sapien

<400> 38

```

tatgaagaag ggaaaagaag ataatttTgt aaagaaatgg gtccagttac tagtctttga      60
aaagggtcag tctgtagctc ttcttaatat gaataggcag ctttcagttg ctcagggtca      120
gatttcctta gtggtgtatc taatcacagg aaacatctgt ggttccctcc agtctctttc      180
tggggggactt gggcccaactt ctcatTTcat ttaattagag gaaatagaac tcaaagtaca      240
atttactggt gtttaacaat gccacaaaga catggttggg agctatttct tgatttTgtgt      300
aaaatgctgt ttttTgtgtc tcataatggt tccaaaaatt gggTgtggc caaagagaga      360
tactgttaca gaagccagca agaagacctc tgTtcattca ccccccggt gatatcagga      420
attgactcca gtgtgtgcaa atccagtttg gcctatcttc t                          461

```

<210> 39

<211> 769

<212> DNA

<213> Homo sapien

<400> 39

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tgaggggactg attggtttgc tctctgctat tcaattcccc aagcccaactt gttcctgcag      60
cgtcctcctt ctcatTTcct ttagttgtac cctctctttc atctgagacc tttccttctt      120
gatgtcgcct tttcttcttc ttgctttttc tgatgttctg ctcagcatgt tctgggtgct      180
tctcatctgc atcattcctt tcagatgctg tagcttcttc ctctctttc tgctcctttt      240
tctttttctt ttttttgggg ggcttgcct ctgactgcag ttgaggggcc ccagggtcct      300
ggcctttgag acgagccagg aaggcctgct cctgggcctc taggcgagca agcttggcct      360
tcattgtgat cccaagacgg gcagccttgt gtgctgttcg cccctcacag gcttgagca      420
gcatctcatc agtcagaatc tttggggact tggaccctg gttgtcgtca tcaactgcagc      480
tctccaagtc tttgtttggc ttctctccac ctgaagtcaa ttagccatc ttcacaaact      540

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tctgatacag	caagttgggc	ttgggatgat	tataacgggt	ggtctcctta	gaaaggctcc	600
ttatctgtac	tccatcctgc	ccagtttcca	ctaccaagtt	ggccgcagtc	ttgttgaaga	660
gctcattcca	ccagtggttt	gtgaactcct	tggcagggtc	atgtcctacc	ccatgagtgt	720
cttgcttcag	ygtcaccctg	agagcctgag	tgataccatt	ctccttccg		769

<210> 40

<211> 292

<212> DNA

<213> Homo sapien

<400> 40

gacaacatga	aataaatcct	agaggacaaa	attaaactca	atagagtgtg	gtctagttaa	60
aaactcgaaa	aatgagcaag	tctggtggga	gtggaggaag	ggctatacta	taaatccaag	120
tgggcctcct	gatcttaaca	agccatgctc	attatacaca	tctctgaact	ggacatacca	180
cctttacgca	ggaaacaggg	cttggaaact	ctaagggaaa	ttaacatgca	ccacccacat	240
ctaacttacc	tgccgggtag	gtaccatccc	tgcttcgctg	aatcagtgcc	tc	292

<210> 41

<211> 406

<212> DNA

<213> Homo sapien

<400> 41

ttggaattaa	ataaacctgg	aacagggaag	gtgaaagttg	gagtgagatg	tcttccatat	60
ctataccttt	gtgcacagtt	gaatgggaac	tgtttgggtt	tagggcatct	tagagttgat	120
tgatggaaaa	agcagacagg	aactgggtgg	aggtcaagtg	gggaagttgg	tgaatgtgga	180
ataacttacc	tttgtgctcc	acttaaacca	gatgtgttgc	agctttcctg	acatgcaagg	240
atctacttta	attccacact	ctcattaata	aattgaataa	aagggaatgt	tttggcacct	300
gatataatct	gccaggctat	gtgacagtag	gaagggaatg	tttcccctaa	caagcccaat	360
gcaactggtct	gactttataa	attattttaat	aaaatgaact	attatc		406

<210> 42

<211> 381

<212> DNA

<213> Homo sapien

<400> 42

aaactggacc	tgcaacaggg	acatgaattt	actgcarggt	ctgagcaagc	tcagcccctc	60
tacctcaggg	ccccacagcc	atgactacct	cccccaggag	cgggaggggtg	aagggggcct	120
gtctctgcaa	gtggagccag	agtggaggaa	tgagctctga	agacacagca	cccagccttc	180
tcgcaccagc	caagccttaa	ctgcctgcct	gaccctgaac	cagaacccag	ctgaactgcc	240
cctccaaggg	acaggaaggc	tgggggaggg	agttttacaac	ccaagccatt	ccaccccctc	300
ccctgctggg	gagaatgaca	catcaagctg	ctaacaattg	ggggaagggg	aaggaagaaa	360
actctgaaaa	caaaatcttg	t				381

<210> 43

<211> 451

<212> DNA

<213> Homo sapien

<400> 43

catgcgtttc	accactgttg	gccaggctgg	tctcgaactc	ctggcctcaa	gcaatccacc	60
cgcttcagcc	tccaaaagtg	ctgggattac	agatgtgagc	catggcacca	tgccaaaagg	120
ctatattcct	ggctctgtgt	ttccgagact	gcttttaatc	ccaacttctc	tacattttaga	180
ttaaaaaata	ttttattcat	ggtcaatctg	gaacataatt	actgcatctt	aagtttccac	240

tgatgtatat	agaaggctaa	aggcacaatt	tttatcaa	at	ctagtagagt	aaccaa	acat	300
aaaatcatta	attactttca	acttaataac	taattgacat	tcctcaaaaag	agctgttttc			360
aatcctgata	ggttctttat	tttttcaaaa	tatatgtgcc	atgggatgct	aatttgcaat			420
aaggcgcata	atgagaatac	cccaaactgg	a					451

<210> 44

<211> 521

<212> DNA

<213> Homo sapien

<400> 44

gttggacccc	cagggactgg	aaagacactt	cttgcccag	ctgtggcggg	agaagctgat	60
gttccttttt	attatgcttc	tggatccgaa	tttgatgaga	tgtttggtgg	tggtggagcc	120
agccgtatca	gaaatctttt	tagggaagca	aaggcgaatg	ctccttggtg	tatatttatt	180
gatgaattag	attctgttgg	tgggaagaga	attgaatctc	caatgcatcc	atattcaagg	240
cagaccataa	atcaacttct	tgctgaaatg	gatggtttta	aacccaatga	aggagtattc	300
ataataggag	ccacaaaactt	cccagaggca	ttagataatg	ccttaataacc	gtcctggtcg	360
ttttgacatg	caagttacag	ttccaaggcc	agatgtaaaa	ggtcgaacag	aaattttgaa	420
atgggtatctc	aataaaaataa	agtttgatca	atcccgttga	tccagaaatt	atagcctcga	480
ggtactgggtg	gctttttccgg	aagcagagtt	gggagaatct	t		521

<210> 45

<211> 585

<212> DNA

<213> Homo sapien

<400> 45

gcctacaaca	tccagaaaga	gtctaccctg	cacctgggtc	tscgtctcag	aggtgggatg	60
cagatctttc	tgaagaccct	gactggtaag	accatcactc	tcgaagtgga	gccgagtgc	120
accatygaga	acgtcaaagc	aaagatccar	gacaaggaag	gcrtycctcc	tgaccagcag	180
aggttgatct	ttgccggaaa	gcagctggaa	gatggdcgca	ccctgtctga	ctacaacatc	240
cagaaagagt	cyaccctgca	cctgggtgctc	cgtctcagag	gtgggatgca	ratcttcgtg	300
aagaccctga	ctggtaagac	catcaccctc	gaggtggagc	ccagtgcac	catcgagaat	360
gtcaaggcaa	agatccaaga	taagggaaggc	atccctcctg	atcagcagag	gttgatcttt	420
gctgggaaac	agctggaaga	tggacgcacc	ctgtctgact	acaacatcca	gaaagagtcc	480
actctgcact	tggctcctgc	cttgaggggg	ggtgtctaag	tttccccttt	taagggtttcm	540
acaaattttca	ttgcactttc	ctttcaataa	agttgttgca	ttccc		585

<210> 46

<211> 481

<212> DNA

<213> Homo sapien

<400> 46

gaactgggccc	ctgagcccac	gtcatgcctt	gtgtccgcat	ctgccgtgtc	acctctgtkc	60
ctgcccctca	cccctccctc	ctggctcttct	gagccagcac	catctccaaa	tagcctattc	120
cttctctgca	atcacacaca	catgcggggc	acacatacct	gctgccctgg	agatggggaa	180
gtaggagaga	tgaatagagg	cccatacatt	gtacagaagg	aggggcaggt	gcagataaaa	240
gcagcagacc	cagcggcagc	tgagggtgcat	ggagcacggt	tggggccggc	attgggctga	300
gcacctgatg	ggcctcatct	cgtgaatcct	cgaggcagcg	ccacagcaga	ggagttaagt	360
ggcacctggg	ccgagcagag	caggagactg	agggtcagag	tggaggctaa	gctgccctgg	420
aactcctcaa	tcttgccctgc	cccctagtat	gaagccccct	tcctgccccct	acaattcctg	480
a						481

<210> 47

<211> 461
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(461)
<223> n = A,T,C or G

<400> 47

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cttaacctcc	caggctcaag	ctatcctcct	gccaaagcct	tccacatagc	tgggactaca	120
ggtacacngc	caccacaccc	agctaaaatt	tttgtatatt	ttgtagagac	gggatctcgc	180
cacgttgccc	aggctggtcc	catcctgacc	tcaagcagat	ctgcccacct	cagcccccca	240
acgtgctagg	attacaggcg	tgagccaccg	cacccagcct	ttgttttgct	tttaatggaa	300
tcaccagttc	ccctccgtgt	ctcagcagca	gctgtgagaa	atgctttgca	tctgtgacct	360
ttatgaagg	gaacttccat	gctgaatgag	ggtaggatta	catgctcctg	tttcccgggg	420
gtcaagaaag	cctcagactc	cagcatgata	agcaggggtga	g		461

<210> 48
<211> 571
<212> DNA
<213> Homo sapien

<400> 48

ataggggcctt	taaggaggga	attcaggttc	aatgaggtcg	taaggccagg	gctcttatcc	60
agtaagactg	gggtccttag	atgagaaaga	gacacccgag	gtccttctct	ctgccgtgtg	120
aggatgcac	aagaaggcgg	ccgtctgcaa	gcgaaggaga	ggccgcacca	gaaaccga	180
ccttcattct	ggacttgag	cctctagaac	tgagaaaata	actgtctgtt	ggtaagcca	240
cccagtttgt	agtattctct	tatggcttcc	taagcagact	aacaaacaaa	cacccaaaat	300
taactgatgg	cttcgctgtc	ttctgtaaaa	attgctatga	gagaactttt	cactcactgt	360
tttgagttt	ctccctcagt	ccctggttct	ttcttctcac	ataatcccaa	tttcaattta	420
tagttcatgg	cccaggcaga	gtcattcatc	acggcatctc	ctgagctaaa	ccagcacctg	480
ctctgctcac	ttcttgactg	gctgetcatc	atcagccctc	ttgcagagat	ttcatttcct	540
cccgtgccag	gtacttcacg	caccaagctc	a			571

<210> 49
<211> 511
<212> DNA
<213> Homo sapien

<400> 49

ggataatgaa	gttggttttat	ttagcttggg	caaaaaggca	tattcctcta	ttttcttata	60
caacaaatat	ccccaaaata	aagcaagcat	atatatcttg	aatgtgtaat	aatccagtga	120
taaacaagag	cagtacttta	aaagaaaaaa	aaatatgtat	ttctgtcagg	ttaaaatgag	180
aatcaaaaacc	atttactctg	ctaactcatt	attttttgct	ttcttttttg	ttaagagagg	240
caatgcaata	cactgaaaaa	ggtttttatc	ttatctggca	ttggaattag	acatattcaa	300
accccgagccc	ccattttccaa	actttaagac	cacaaacaag	taatttactt	ttctgaacat	360
tggttttttc	tggaaaaatg	gaattataaa	atagactttg	cagactctta	tgagattaaa	420
taagataatg	tatgaaattc	tttcttcttt	tttacttctt	tttccttttt	gagatggagt	480
ctcaccgccg	caccagggct	ggagtacagt	g			511

<210> 50
<211> 561
<212> DNA

<213> Homo sapien

<400> 50

ccactgcact	ccagcctggg	tgacggagtg	agactctgtc	tcaaaaaaac	aaacaaacaa	60
acaaacaaaa	aactgaaaag	gaaatagagt	tcctctttcc	tcatatatga	atatattatt	120
tcaacagatt	gttgatcacc	taccatatgc	ttggtattgt	tctaattgct	ggggatacag	180
caagaggttc	tgcagaactt	catggagcat	gaaagtaaat	aaacaaagtt	aatttcaagg	240
ccaggcatgg	ttgctcacac	cttttagtccc	agcactttgg	gaggctgagg	caggtggatc	300
acttggggcc	aggagttcaa	ggctgcagtg	agccaagatt	gtgccactac	tctccaggct	360
gggcaacaga	gcaagaccct	gtctcagggg	gaacaaaaag	ttaatttcag	attttgtaa	420
gtgctgtaaa	ggaagtaaat	aggttgatat	tcaagagagc	acctgaaggc	caggcgtggt	480
ggctcacgcc	tgtggtctaa	cgttttggga	agcccgagcg	ggcggatcac	aaggtcagga	540
gaattttggc	caggcatggt	g				561

<210> 51

<211> 451

<212> DNA

<213> Homo sapien

<400> 51

agaatccatt	tattgggttt	taaactagtt	acacaactga	aatcagtttg	gcactacttt	60
atacagggat	tacgctgtg	tatgccgaca	cttaaatact	gtaccaggac	cactgctgtg	120
cttaggtctg	tattcagtc	ttcagcatgt	agatactaaa	aataatactgt	agtgttcctt	180
taaggaagac	tgtacagggt	gtgttgcaag	atgacattca	ccaatttggtg	aattatttca	240
accagaaga	tacctttcac	tctataaaact	tgtcataggc	aaacatgtgg	tgttagcatt	300
gagagatgca	cacaaaaatg	ttacataaaa	gttcagacat	tctaatagata	agtgaactga	360
aaaaaaaaaa	aaccccat	ctcaattttt	gtaacaagat	aaagaaaata	atttaaaaac	420
acaaaaaatg	gcattcagtg	ggtacaaagc	c			451

<210> 52

<211> 682

<212> DNA

<213> Homo sapien

<400> 52

caaataattta	atataaatct	ttgaaacaag	ttcagakgaa	ataaaaaatca	aagtttgcaa	60
aaacgtgaag	attaacttaa	ttgtcaaata	ttcctcattg	ccccaaatca	gtattttttt	120
tatttctatg	caaaagtatg	ccttcaaact	gcttaaatga	tatatgatat	gatacacaaa	180
ccagttttca	aatagtaaa	ccagtcattc	tgcaattgta	agaaataggt	aaaagattat	240
aagacacctt	acacacacac	acacacacac	acacacacgt	gtgcaccgcc	aatgacaaaa	300
aacaatttg	cctctcctaa	aataagaaca	tgaagaccct	taattgctgc	caggagggaa	360
cactgtgtca	cccctcccta	caatccaggt	agtttccctt	aatccaatag	caaactctggg	420
catatttgag	aggagtgatt	ctgacagcca	csgttgaaat	cctgtgggga	accattcatg	480
tccaccact	ggtgccctga	aaaaatgcc	ataatttttc	gctcccactt	ctgctgctgt	540
ctcttcacac	tcctcacata	gaccocagac	ccgctggccc	ctggctgggc	atcgcatgtc	600
tggtagagca	agtcataggt	ctcgtctttg	acgtcacaga	agcgatacac	caaattgcct	660
ggtcggtcat	tgtcataacc	ag				682

<210> 53

<211> 311

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(311)

<223> n = A,T,C or G

<400> 53

tttgacttta	gtaggggtct	gaactattta	ttttactttg	ccmgtaatat	ttaraccyta	60
tatatctttc	attatgccat	cttatctttc	aatgbcaagg	gaacagwtgc	taamctggct	120
tctgcattwa	tcacattaaa	aatggctttc	ttggaaaatc	ttcttgatat	gaataaagga	180
tcttttavag	ccatcattta	aagcmggnnt	ctctccaaca	cgagctctgct	sasgggggk	240
gagctgtgaa	ctctggctga	aggctttccc	atacacactg	caatgacmtg	gtttctgacc	300
agbgtgagtt	a					311

<210> 54

<211> 561

<212> DNA

<213> Homo sapien

<400> 54

agagaagccc	cataaatgca	atcagtgtgg	gaaggccttc	agtcagagct	caagcctttt	60
cctccatcat	cgggttcata	ctggagagaa	accctatgta	tgtaatgaat	gcggcagagc	120
cttttggttt	aactctcatc	ttactgaaca	cgtaaggatt	cacacaggag	aaaaacccta	180
tgtttgtaat	gagtgcggca	aagcctttcg	tcggagttcc	actcttggtc	agcatcgaag	240
agttcacact	ggggagaagc	cctaccagtg	cggtgaatgt	gggaaagctt	tcagccagag	300
ctcccagctc	accctacatc	agccgagttc	acactggaga	gaagccctat	gactgtggtg	360
actgtgggaa	ggccttcagc	cggaggtcaa	ccctcattca	gcacagaaaa	gttcacagcg	420
gagagactcg	taagtgcaga	aaacatggtc	cagcctttgt	tcatggctcc	agcctcacag	480
cagatggaca	gattcccact	ggagagaagc	acggcagaac	ctttaaccat	ggtgcaaatc	540
tcattctgcg	ctggacagtt	c				561

<210> 55

<211> 811

<212> DNA

<213> Homo sapien

<400> 55

gagacaggggt	ctcactttgt	cacccaggct	ggaatgcagt	ggtgcgatct	tacgtagctc	60
actgcagccc	tgacctcctg	gactcaaaca	attctcctgc	ctcagccctg	caagtagctg	120
ggactgtggg	tgcatgccac	catgcctggc	taacttttgt	agtttttgta	aagatgggggt	180
tttgccatgt	tgacatgct	ggtcttgaa	tcctgagctc	aaacgatctg	cccacctcgg	240
cctcccagaa	tggtgggatt	acaggggtaa	accaccacgc	ctggccccc	taggggtattc	300
ttagcatcca	cttgctcact	gagattaatc	ataagagatg	ataagcactg	gaagaaaaaa	360
atttttacta	ggctttggat	atttttttcc	tttttcagct	ttatacagag	gattggatct	420
ttagttttcc	tttaactgat	aataaaacat	tgaaaggaaa	taagtttacc	tgagattcac	480
agagataacc	ggcatcactc	ccttgctcaa	ttccagctct	taccacatca	attattttca	540
gaggtgcagg	ataaaggcct	ttagtctgct	ttcgcacttt	ttcttccact	tttttgtaaa	600
cctgttgcc	gacaaatgga	attgacagcg	tatgccatga	ctattccatt	tgtcaggcat	660
acgctgtcaa	tttttccacc	aatcccttgt	ctctctttgg	agagatcttc	ttatcagcta	720
gtcctttggc	aaaagtaatt	gcaacttctt	ctaggtattc	tattgtccgt	tccactgggtg	780
gaaccctcgg	gaccaggact	aaaacctcca	g			811

<210> 56

<211> 591

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(591)
 <223> n = A,T,C or G

<400> 56
 atctcatata tatatttctt cctgacttta tttgcttgct tctgncacgc atttaaaata 60
 tcacagagac caaaatagag cggctttctg gtggaacgca tggcagtcac aggacaaaat 120
 acaaaactag ggggctctgt cttctcatat atcatacaat tttcaagtat tttttttatg 180
 tacaaagagc tactctatct gaaaaaaaaat taaaaaataa atgagacaag atagtttatg 240
 catcctagga agaaagaatg ggaagaaaga acggggcagt tgggtacaga ttcctgtccc 300
 ctgttcccag ggaccactac cttcctgcca ctgagttccc ccacagcctc acccatcatg 360
 tcacagggga agtgccagg taggtgggga ccagtggaga caggaaccag caacatactt 420
 tggcctggaa gataaggaga aagtctcaga aacacactgg tgggaagcaa tcccacnggc 480
 cgtgccccan gagcttccca cctgctgctg gctccctggg tggctttggg aacagcttgg 540
 gcaggccctt ttgggtgggg nccaactggg cctttggggc cgtgtggaaa g 591

<210> 57
 <211> 481
 <212> DNA
 <213> Homo sapien

<400> 57
 aaacattgag atggaatgat aggggtttccc agaatcaggt ccatatttta actaaatgaa 60
 aattatgatt tatagccttc tcaaatacct gccatacttg atatctcaac cagagctaata 120
 tttacctctt tacaaattaa ataagcaagt aactggatcc acaatttata atacctgtca 180
 attttttctg tattaaacct ctatcatagt ttaagcctat taggtactt aatccttaca 240
 aataaacagg tttaaaatca cctcaatagg caactgccct tctggttttc ttctttgact 300
 aaacaattctg aatgcttaag attttccact ttgggtgcta gcagtacaca gtgttacact 360
 ctgtattcca gacttcttaa attatagaaa aaggaatgta cactttttgt attctttctg 420
 agcaggggccg ggaggcaaca tcatctacca tggtagggac ttgtatgcat ggactacttt 480
 a 481

<210> 58
 <211> 141
 <212> DNA
 <213> Homo sapien

<400> 58
 actctgtcgc ccaggctgga gcccabtggm gcgatctcga ctccctgcaa gctmcgcctc 60
 acaggwtcat gccattctcc tgcctcagca tctggagtag ctgggactac aggcgccagc 120
 caccatgccc agctaatttt t 141

<210> 59
 <211> 191
 <212> DNA
 <213> Homo sapien

<400> 59
 accttaaaga cataggagaa tttatactgg gagagaaagc ttacaaatgt aagggtttctg 60
 acaagacttg ggagtgattc acacctggaa caacatactg gacttcacac tggabagaaa 120
 ccttacaagt gtaatgagtg tggcaaagcc tttggcaagc agtcaacact tattcaccat 180
 caggcaattc a 191

<210> 60
 <211> 480

<212> DNA

<213> Homo sapien

<400> 60

agtcaggatc	atgatggctc	agtttccac	agcgatgaat	ggagggccaa	atatgtgggc	60
tattacatct	gaagaacgta	ctaagcatga	taaacagttt	gataacctca	aaccttcagg	120
aggttacata	acaggtgatc	aagcccgta	ttttttccta	cagtcagggtc	tgccggcccc	180
ggttttagct	gaaatatggg	ccttatcaga	tctgaacaag	gatgggaaga	tgaccagca	240
agagttctct	atagctatga	aactcatcaa	gttaaagttg	cagggccaac	agctgcctgt	300
agtcctccct	cctatcatga	aacaaccccc	tatgttctct	ccactaatct	ctgctcgttt	360
tgggatggga	agcatgccca	atctgtccat	tcacagacca	ttgcctccag	ttgcacctat	420
agcaacaccc	ttgtcttctg	ctacttcagg	gaccagtatt	cctccctaata	gatgcctgct	480

<210> 61

<211> 381

<212> DNA

<213> Homo sapien

<400> 61

ctttcgattt	ccttcaattt	gtcacgtttg	attttatgaa	gttggtcaag	ggctaactgc	60
tgtgtattat	agctttctct	gagttccttc	agctgattgt	taaatgaatc	cattttctgag	120
agcttagatg	cagtttcttt	ttcaagagca	tctaattgtt	ctttaagtct	ttggcataat	180
tcttcctttt	ctgatgactt	tctatgaagt	aaactgatcc	ctgaatcagg	tgtgttactg	240
agctgcatgt	ttttaattct	ttcgtttaat	agctgcttct	cagggaccag	atagataagc	300
ttattttgat	attccttaag	ctcttggtga	agttgttcga	tttcataat	ttccaggtca	360
cactggttat	cccaaacttc	t				381

<210> 62

<211> 906

<212> DNA

<213> Homo sapien

<400> 62

gtggagggtga	aacggaggca	agaaaggggg	ctacctcagg	agcgaggggac	aaagggggcg	60
tgaggcacct	aggccgcggc	accccggcga	caggaagccg	tcctgaaccg	ggctaccggg	120
taggggaagg	gcccgcgtag	tcctcgcagg	gccccagagc	tgagtcggc	tcacagccc	180
cgggcccgtcg	gcttctcact	tcctggacct	ccccggcgcc	cgggcctgag	gactggctcg	240
gcggaggggag	aagaggaaaac	agacttgagc	agctccccgt	tgtctcgcaa	ctccactgcc	300
gaggaactct	catttcttcc	ctcgctcctt	cacccccac	ctcatgtaga	aaggtgctga	360
agcgtccgga	gggaagaaga	acctgggcta	ccgtcctggc	cttcccmccc	ccttcccggg	420
gcgctttggt	gggcgtggag	ttgggggttg	gggggtgggt	gggggttctt	ttttggagtg	480
ctggggaact	ttttccctt	cttcaggta	ggggaaagg	aatgcccaat	tcagagagac	540
atgggggcaa	gaaggacggg	agtggaggag	cttctggaac	tttgcagccg	tcacggggag	600
gcggcagctc	taacagcaga	gagcgtcacc	gcttggtatc	gaagcacaag	cggcataagt	660
ccaaacactc	caaagacatg	gggttggtga	ccccgaagc	agcatccctg	ggcacagtta	720
tcaaaccttt	ggtggagtat	gatgatatca	gctctgattc	cgacaccttc	tccgatgaca	780
tggccttcaa	actagaccga	agggagaacg	acgaacgtcg	tggatcagat	cggagcgacc	840
gcctgcacaa	acatcgtcac	caccagcaca	ggcgttcccg	ggacttacta	aaagctaaac	900
agaccg						906

<210> 63

<211> 491

<212> DNA

<213> Homo sapien

<400> 63

gacatgtttg	cctgcagggg	accagagaca	atgggattag	ccagtgtctca	ctgttcttta	60
tgcttccaga	gaggatggg	acagctctca	ggtcagaatc	caggctgaga	aggccatgct	120
ggttgggggc	ccccggaagc	acggtcggga	tcctccctgg	catcagcgta	gacccgctgc	180
tcaggcttgg	ggtaccaaac	tcatgctctg	tactgttttg	gccccatgcg	gtgagaggaa	240
aacctagaaa	aagattggtc	gtgctaagga	atcagctgcc	ccctcatcct	ccgcatccaa	300
tgctgggtgac	aacatattcc	ctctcccagg	acacagactc	ggtgactcca	cactgggctg	360
agtggcctct	ggaggctcgt	ggcctaaggc	agggctccgt	aaggctgac	ggctgaactg	420
ggtggggtga	gggtttctga	cccttcgctt	cccatcccat	aaccgctgtc	aatgagctca	480
cactgtggtc	a					491

<210> 64

<211> 511

<212> DNA

<213> Homo sapien

<400> 64

gatggcatgg	tgttgctaa	tgtgcctgct	gggatggagc	acttcctcct	gtgagcccag	60
gggacccgcc	tgtccctgga	gcttggggca	aggaggggaag	agtgatacca	ggaagggtggg	120
gctgcagcca	ggggccagag	tcagttcagg	gagtggtcct	cggccctcaa	agctcctccg	180
gggactgctc	aggagtgatg	gtgccctgga	gtttgccccca	acttccttgg	ccaccctgga	240
aggtgcctgg	ctgctccagg	cctctagget	gggctgatgg	gtttctccag	gacacaagta	300
tcattaaagc	caccctctcc	tcagcttgct	aggccgcaca	tgtgggacag	gctgtgctca	360
caacccccctc	gcctgccctg	ccctccatca	ggaggagcca	gtggaacctt	cggaaagctc	420
ccagcatctc	agcagccctc	aaaagtcgtc	ctggggcaag	ctctggttct	cctgactgga	480
ggtcactctgg	gcttggcctg	ctctctctcg	c			511

<210> 65

<211> 394

<212> DNA

<213> Homo sapien

<400> 65

taaaaaagtg	taacaaaggt	ttatttagac	tttcttcattg	ccccagatc	caggatgtct	60
atgtaaaccg	ttatcttaca	aagaaagcac	aatatttgg	ataaactaag	tcagtgaactt	120
gcttaactga	aatagcgtcc	atccaaaagt	gggtttaagg	taaaactacc	tgacgatatt	180
ggcggggatc	ctgcagtttg	gactgcttgc	cgggtttgtc	cagggttccg	ggtctgttct	240
tggcaactcat	ggggacaggc	atcctgctcg	tctgtggggc	cccgtggag	cccttacgtg	300
aagctgaagg	tatcgaccst	agggggctct	agggcagtgg	gaccttcac	cggaaactaac	360
aagggtcggg	gagaggcctc	ttgggctatg	tggg			394

<210> 66

<211> 359

<212> DNA

<213> Homo sapien

<400> 66

caagcgttcc	tttatggatg	taaattcaaa	cagtcattgct	gagccatccc	gggctgacag	60
tcacgttwaa	gacactaggt	cgggcgccac	agtgccaccc	aaggagaaga	agaatttggg	120
atttttccat	gaagatgtac	ggaaatctga	tgttgaatat	gaaaatggcc	cccaaattgga	180
attccaaaag	gttaccacag	gggctgtaag	acctagtgtac	cctcctaagt	gggaaagagg	240
aatggagaat	agtatttctg	atgcatcaag	aacatcagaa	tataaaactg	agatcataat	300
gaaggaaaaat	tccatatcca	atatgagttt	actcagagac	agtagaaact	attcccagg	359

<210> 67

<211> 450

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(450)
<223> n = A,T,C or G

<400> 67

taggaataac	aaatgtttat	tcagaaatgg	ataagtaata	cataatcacc	cttcatctct	60
taatgccct	tcctctcctt	ctgcacagga	gacacagatg	ggtaacatag	aggcatggga	120
agtggaggag	gacacaggac	tagccaccca	ccttctcttc	ccggtctccc	aagatgactg	180
cttatagagt	ggaggaggca	aacagggtccc	ctcaatgtac	cagatgggtca	cctatagcac	240
cagctccaga	tggccacgtg	gttgacagctg	gactcaatga	aactctgtga	caaccagaag	300
atacctgctt	tgggatgaga	gggaggataa	agccatgcag	ggaggatatt	taccatccct	360
accctaagca	cagtgcgaagc	agtgagcccc	cggctcccag	tacctgaaaa	accaaggcct	420
actgnctttt	ggatgctctc	ttggggccacg				450

<210> 68
<211> 511
<212> DNA
<213> Homo sapien

<400> 68

aagcctcctg	ccctggaaat	ctggagcccc	ttggagctga	gctggacggg	gcagggaggg	60
gctgagaggc	aagaccgtct	ccctcctgct	gcagctgctt	ccccagcagc	cactgctggg	120
cacagcagaa	acgccagcag	agaaaatggg	agccgagagt	ccttagccct	ggagctgagg	180
ctgcctctgg	gctgacccgc	tggctgtacg	tggccagaac	tggggttggc	atctggcatc	240
catttgaggc	caggggtggag	gaaagggagg	ccaacagagg	aaaacctatt	cctgctgtga	300
caacacagcc	cttgtccac	gcagcctaag	tgagggagc	gtgatgaagt	caggcagcca	360
gtcggggagg	acgaggtaac	tcagcagcaa	tgtcaccttg	tagcctatgc	gctcaatggc	420
ccggaggggc	agcaaccccc	cgcacacgtc	agccaacagc	agtgccctctg	caggcaccaa	480
gagagcgatg	atggacttga	gcgcctgttt	c			511

<210> 69
<211> 511
<212> DNA
<213> Homo sapien

<400> 69

gtttggcaga	agacatgttt	aataacattt	tcataatttaa	aaaatacagc	aacaattctc	60
tatctgtcca	ccatcttgcc	ttgcccttcc	tggggctgag	gcagacaaaag	gaaaggtaat	120
gagggttagg	ccccaggcg	ggctaagtgc	tattggcctg	ctcctgctca	aagagagcca	180
tagccagctg	ggcacggccc	cctagccctt	ccaggttgct	gaggcggcag	cggtggtaga	240
gttcttctact	gagccgtggg	ctgcagtctc	gcagggagaa	cttctgcacc	agccctggct	300
ctacggcccc	aaagaggtgg	agccctgaga	accggaggaa	aacatccatc	acctccagcc	360
cctccagggc	ttctcctct	tcctggcctg	ccagttcacc	tgccagccgg	gctcggggccg	420
ccaggtagtc	agcgtttag	aagcagccct	ccgcagaagc	ctgccggtca	aatctccccg	480
ctataggagc	ccccggggag	gggtcagcac	c			511

<210> 70
<211> 511
<212> DNA
<213> Homo sapien

<400> 70

caagttgaac	gtcaggcttg	gcagaggttg	agtgtagatg	aaaacaaagg	tgtgattatg	60
aagaggatgt	gagtcctttg	ggtgtaggag	agaaaggctg	ttgagcttct	atttcaagat	120
acttttacct	gtgcaaaaag	cacattttcc	acctccttct	catggcattt	gtgtaagggtg	180
agtatgattc	ctattccatc	tgcatttttag	aggtgaagaa	taacgtacaa	gggattcagt	240
gattagcaag	ggacccctca	ctaagtgttg	atggagttag	gacagagctc	agctgtttga	300
atctcagagc	ccaggcagct	ggagctgggt	aggatcctgg	agctggcact	aatgtgaggt	360
gcattccctc	caacccaggc	tcagatccgg	aacctgaccg	tgctgacccc	cgaaggggag	420
gcagggctga	gctggcccgt	tgggctccct	gctcctttca	caccacactc	tcgctttgag	480
gtgctgggct	gggactactt	cacagagcag	c			511

<210> 71

<211> 511

<212> DNA

<213> Homo sapien

<400> 71

tggcctgggc	aggattggga	gagaggttagc	tacccggatg	cagtcctttg	ggatgaagac	60
tatagggtat	gaccccatca	tttccccaga	ggtctcggcc	tcctttggtg	ttcagcagct	120
gcccctggag	gagatctggc	ctctctgtga	tttcatcact	gtgcacactc	ctctcctgcc	180
ctccacgaca	ggcttgctga	atgacaacac	ctttgcccag	tgcaagaagg	gggtgcgtgt	240
ggtgaactgt	gcccgtggag	ggatcgtgga	cgaaggcgcc	ctgctccggg	ccctgcagtc	300
tggccagtgt	gccggggctg	cactggacgt	gtttacggaa	gagccgccac	gggaccgggc	360
cttggtggac	catgagaatg	tcatacagctg	tccccacctg	ggtgccagca	ccaaggaggc	420
tcagagccgc	tgtggggagg	aaattgctgt	tcagttcgtg	gacatggtga	aggggaaatc	480
tctcacgggg	gttgtgaatg	cccaggccct	t			511

<210> 72

<211> 2017

<212> DNA

<213> Homo sapien

<400> 72

agccagatgg	ctgagagctg	caagaagaag	tcaggatcat	gatggctcag	tttccacacag	60
cgatgaatgg	agggccaaat	atgtgggcta	ttacatctga	agaacgtact	aagcatgata	120
aacagtttga	taacctcaaa	ccttcaggag	gttacataac	aggtgatcaa	gcccgtactt	180
ttttcctaca	gtcaggctctg	ccggccccgg	ttttagctga	aatatgggcc	ttatcagatc	240
tgaacaagga	tgggaagatg	gaccagcaag	agttctctat	agctatgaaa	ctcatcaagt	300
taaagttgca	gggccaacag	ctgcctgtag	tcctccctcc	tatcatgaaa	caacccccta	360
tgttctctcc	actaatctct	gtcgtttttg	ggatgggaag	catgcccaat	ctgtccattc	420
atcagccatt	gcctccagtt	gcacctatag	caacaccctt	gtcttctgct	acttcaggga	480
ccagtattcc	tcccctaattg	atgcctgctc	ccctagtgcc	ttctgttagt	acatcctcat	540
taccaaattg	aactgccagt	ctcattcagc	ctttatccat	tccttattct	tcttcaacat	600
tgctcatg	atcatcttac	agcctgatga	tgggaggatt	tgggtggtgct	agtatccaga	660
aggcccagtc	tctgattgat	ttaggatcta	gtagctcaac	ttcctcaact	gcttcctct	720
cagggaactc	acctaagaca	gggacctcag	agtgggcagt	tcctcagcct	tcaagattaa	780
agtatcggca	aaaattttaat	agtctagaca	aaggcatgag	cggatacctc	tcagggttttc	840
aagctagaaa	tgcccttctt	cagtcaaate	tctctcaaac	tcagctagct	actatttgga	900
ctctggctga	catcgatggt	gacggacagt	tgaaagctga	agaatttatt	ctggcgatgc	960
acctcactga	catggccaaa	gctggacagc	cactaccact	gacgttgccct	cccagacttg	1020
tccttccatc	tttcagaggg	ggaaagcaag	ttgattctgt	taatggaact	ctgccttcat	1080
atcagaaaaac	acaagaagaa	gagcctcaga	agaaactgcc	agttactttt	gaggacaaac	1140
ggaaagccaa	ctatgaacga	ggaaacatgg	agctggagaa	gcgacgccaa	gtgttgatgg	1200
agcagcagca	gagggaggct	gaacgcaaag	cccagaaaga	gaagggaagag	tgggagcgga	1260
aacagagaga	actgcaagag	caagaatgga	agaagcagct	ggagttggag	aaacgcttgg	1320

agaaacagag	agagctggag	agacagcggg	aggaagagag	gagaaaggag	atagaaagac	1380
gagaggcagc	aaaacaggag	cttgagagac	aacgccgttt	agaatgggaa	agactccgtc	1440
ggcaggagct	gctcagtcag	aagaccaggg	aacaagaaga	cattgtcagg	ctgagctcca	1500
gaaagaaaag	tctccacctg	gaactggaag	cagtgaatgg	aaaacatcag	cagatctcag	1560
gcagactaca	agatgtccaa	atcagaaaagc	aaacacaaaa	gactgagcta	gaagttttgg	1620
ataaacagtg	tgacctggaa	attatggaaa	tcaaacaact	tcaacaagag	cttaaggaat	1680
atcaaaataa	gcttatctat	ctggctccctg	agaagcagct	attaaacgaa	agaattaaaa	1740
acatgcagct	cagtaacaca	cctgattcag	ggatcagttt	acttcataaa	aagtcacag	1800
aaaaggaaga	attatgccaa	agacttaaag	aacaattaga	tgctcttgaa	aaagaaactg	1860
catctaagct	ctcagaaatg	gattcattta	acaatcagct	gaaggaactc	agagaaagct	1920
ataatacaca	gcagttagcc	cttgaacaac	ttcataaaat	caaacgtgac	aaattgaag	1980
aaatcgaaag	aaaaagatta	gagcaaaaaa	aaaaaaa			2017

<210> 73

<211> 414

<212> DNA

<213> Homo sapien

<400> 73

atggcagtg	cattcacat	catgggaacc	accttccctt	ttcttcagga	ttctctgtag	60
tggaagagag	caccagtg	tgggctgaaa	acatctgaaa	gtagggagaa	gaacctaaaa	120
taatcagtat	ctcagagggc	tctaaggtgc	caagaagtct	cactggacat	ttagtgcca	180
acaaaggcat	actttcgga	tcgccaaagtc	aaaactttct	aacttctgtc	tctctcagag	240
acaagtgaga	ctcaagagtc	tactgcttta	gtggcaacta	cagaaaactg	gtgttaccca	300
gaaaaacagg	agcaattaga	aatggttcca	atatttcaaa	gctccgcaa	caggatgtgc	360
tttcctttgc	ccatttaggg	tttcttctct	ttcctttctc	tttattaacc	acta	414

<210> 74

<211> 1567

<212> DNA

<213> Homo sapien

<400> 74

atatctagaa	gtctggagtg	agcaaacaag	agcaagaaac	aaaaagaagc	caaaagcaga	60
aggctccaat	atgaacaaga	taaattctatc	ttcaaagaca	tattagaagt	tggaagaaata	120
attcatgtga	actagacaag	tgtgttaaga	gtgataagta	aatgacacgt	ggagacaagt	180
gcattccccag	atctcagggg	cctccccctg	cctgtcacct	ggggagtgag	aggacaggat	240
agtgcagttt	ctttgtctct	gaatttttag	ttatatgtgc	tgtaatgttg	ctctgaggaa	300
gcccctggaa	agtctatccc	aacatatcca	catcttatat	tccacaaatt	aagctgtagt	360
atgtacccta	agacgtgct	aattgactgc	cacttcgcaa	ctcaggggag	gctgcatttt	420
agtaatgggt	caaattgattc	actttttatg	atgcttccaa	aggtgccttg	gcttctcttc	480
ccaactgaca	aatgccaaag	ttgagaaaaa	tgatcataat	tttagcataa	acagagcagt	540
cggcgacacc	gattttataa	ataaactgag	caccttcttt	ttaaacaaac	aaatgcgggt	600
ttattttctca	gatgatgttc	atccgtgaat	ggccagggga	aggacctttc	accttgacta	660
tatggcatta	tgtcatcaca	agctctgagg	cttctccttt	ccatcctgcg	tggaacagcta	720
agacctcagt	tttcaatagc	atctagagca	gtgggactca	gctgggggtga	tttcgcccc	780
catctccggg	ggaatgtctg	aagacaattt	tgttacctca	atgagggagt	ggaggaggat	840
acagtgttac	taccaactag	tggataaagg	ccagggatgc	tgctcaacct	cctaccatgt	900
acaggacgtc	tccccattac	aactacccaa	tccgaagtgt	caactgtgtc	aggactaaga	960
aaccctgggt	ttgagtagaa	aagggcctgg	aaagagggga	gccaacaaat	ctgtctgctt	1020
cctcacatta	gtcattggca	aataagcatt	ctgtctcttt	ggctgctgcc	tcagcacaga	1080
gagccgaaac	tctatcgggc	accaggataa	catctctcag	tgaacagagt	tgacaaggcc	1140
tatgggaaat	gctgatggg	attatcttca	gcttgttgag	cttctaagtt	cttttccttt	1200
cattctaccc	tgcaagccaa	gttctgtaag	agaaatgcct	gagttctagc	tcagggttttc	1260
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atataccttc	catgaagcac	acacagactt	ttgaaagcaa	ggacaatgac	tgcttgaatt	1380
gaggccttga	ggaatgaagc	tttgaaggaa	aagaatactt	tgtttccagc	ccccttccca	1440
cactcttcat	gtgttaacca	ctgccttcct	ggaccttgga	gccacgggtga	ctgtattaca	1500
tgttgttata	gaaaactgat	tttagagttc	tgatcgttca	agagaatgat	taaatatata	1560
tttccta						1567

<210> 75

<211> 240

<212> DNA

<213> Homo sapien

<400> 75

tcgagcggcc	gcccgggcag	gtccttcaga	cttggactgt	gtcacactgc	caggcttcca	60
gggtccaac	ttgcagacgg	cctgttggtg	gacagtctct	gtaatcgoga	aagcaaccat	120
ggaagacctg	ggggaaaaca	ccatggtttt	atccaccctg	agatctttga	acaacttcat	180
ctctcagcgt	gcggaggggag	gctctggact	ggatatttct	acctcggcog	cgaccacgct	240

<210> 76

<211> 330

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(330)

<223> n = A,T,C or G

<400> 76

tagcgyggtc	gcggccgagg	yctgcttytc	tgtccagccc	agggcctgtg	gggtcagggc	60
ggtgggtgca	gatggcatcc	actccgggtg	cttccccatc	tttctctggc	ctgagcaagg	120
tcagcctgca	gccagagtac	agagggccaa	cactgggtgtt	cttgaacaag	ggccttagca	180
ggcctgaag	gcccctctct	gtagtgttga	acttccctgga	gccaggccac	atgttctcct	240
cataccgcag	gytagygtg	gtgaagttga	gggtgaaata	gtattmangr	agatggctgg	300
caracctgcc	cgggcggccg	ctcsaaatcc				330

<210> 77

<211> 361

<212> DNA

<213> Homo sapien

<400> 77

agcgtggtcg	cggccgaggt	gtccttcagg	gtctgcttat	gcccttgttc	aagaacacca	60
gtgtcagctc	tctgtactct	ggttgacagc	tgaccttgct	caggcctgag	aaggatgggg	120
cagccaccag	agtggatgct	gtctgcaccc	atcgtcctga	ccccaaaagc	cctggactgg	180
acagagagcg	gctgtactgg	aagctgagcc	agctgaccca	cggcatcact	gagctggggc	240
cctacaccct	ggacagggac	agtctctatg	tcaatggttt	caccatcgga	agctctgtac	300
ccaccaccag	caccgggggtg	gtcagcgagg	agccattcaa	cctgcccggg	cggccgctcg	360
a						361

<210> 78

<211> 356

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(356)
 <223> n = A,T,C or G

<400> 78

ttggggnttt	mgagcggccg	cccgggcagg	taccgggggtg	gtcagcggagg	agccattcac	60
actgaacttc	accatcaaca	acctgcggta	tgaggagaac	atgcagcacc	ctggctccag	120
gaagttcaac	accacggaga	gggtccttca	gggcctgctc	aggtccctgt	tcaagagcac	180
cagtgttggc	cctctgtact	ctggctgcag	actgactttg	ctcagacttg	agaaacatgg	240
ggcagccact	ggagtggacg	ccatctgcac	cctccgcctt	gatcccaactg	gtcctggact	300
ggacagagag	cggctatact	gggagctgag	ccagtcctct	ggcggngacn	ccnctt	356

<210> 79
 <211> 226
 <212> DNA
 <213> Homo sapien

<400> 79

agcgtgggtcg	cggccgagggt	ccagtcgcag	catgctcttt	ctcctgcccc	ctggcacagt	60
gaggaagatc	tctgctgtca	gtgagaaggc	tgtcatccac	tgagatggca	gtcaaaagtg	120
catttaatac	acctaacgta	tcgaacatca	tagcttggcc	caggttatct	catatgtgct	180
cagaacactt	acaatagcct	gcagacctgc	ccgggcggcc	gctcga		226

<210> 80
 <211> 444
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(444)
 <223> n = A,T,C or G

<400> 80

tgtggtgttg	aacttcctgg	agncagggtg	acccatgtcc	tccccatact	gcaggttggt	60
gatggtgaag	ttgagggtga	atggtaccag	gagagggcca	gcagccataa	ttgtsgrgck	120
gsmgmssgag	gmwggwgtyy	cwgagggttcy	rarrtccact	gtggagggtcc	caggagtgt	180
ggtggtgggc	acagagstcy	gatgggtgaa	accattgaca	tagagactgt	tcctgtccag	240
ggtgtagggg	cccagctctt	yratgycatt	ggycagttkg	ctyagctccc	agtacagccr	300
ctctckgyyg	mgwccagsgc	ttttggggtc	aagatgatgg	atgcagatgg	catccactcc	360
agtggctgct	ccatccttct	cggacctgag	agaggtcagt	ctgcagccag	agtacagagg	420
gccaacactg	gtgttctttg	aata				444

<210> 81
 <211> 310
 <212> DNA
 <213> Homo sapien

<400> 81

tcgagcggcc	gcccgggcag	gtcaggaagc	acattggtct	tagagccact	gcctcctgga	60
ttccacctgt	gtgcgggaca	tctccaggga	gtgcagaagg	gaagcagggtc	aaactgctca	120
gatcagtcag	actggctgtt	ctcagttctc	acctgagcaa	ggtcagtctg	cagccagagt	180
acagagggcc	aacactgggtg	ttcttgaaca	agggcttgag	cagaccctgc	agaaccctct	240
tccgtggtgt	tgaacttcct	ggaaaccagg	gtgttgcatg	tttttcttca	taatgcaagg	300
ttgggtgatgg						310

<210> 82
<211> 571
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(571)
<223> n = A,T,C or G

<400> 82
acgggtttcaa tggacacttt tattgtttac ttaatggatc atcaattttg tctcactacc 60
tacaaatgga atttcatctt gtttccatgc tgagttagtga aacagtgaca aagctaataca 120
taataaccta catcaaaaaga gaactaagct aacactgctc actttctttt taacaggcaa 180
aatataaata tatgcactct anaatgcaca atggtttagt cactaaaaaa ttcaaattggg 240
atcttgaaga atgtatgcaa atccagggtg cagtgaagat gagctgagat gctgtgcaac 300
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tttagctaata gccaaagtgga gatgcagaaa atgctaagtt gacttagggg ctgtgcacag 420
gaactaaaag gcaggaaaagt actaaatatt gctgagagca tccaccccag gaaggacttt 480
accttccagg agctccaaac tggcaccacc cccagtgtc acatggctga ctttatcctc 540
cgtgttccat ttggcacagc aagtggcagt g 571

<210> 83
<211> 551
<212> DNA
<213> Homo sapien

<400> 83
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aagggaagaa atgcttcttg gaacaagggt aaagccgagc cagccaaaat agaagctttc 120
cgagcttcac tttccaagct aggggatgtc tatgtcaatg atgcttttgg cactgctcac 180
agagcccaca gctccatggt aggagtcaat ctgccacaga aggctggtgg gtttttgatg 240
aagaaggagc tgaactactt tgcaaaggcc ttggagagcc cagagcgacc cttcctggcc 300
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gtcaatgaga tgattatttg tgggtggaatg gcttttacct tccttaaggt gctcaacaac 420
atggagattg gcacttctct gtttgatgaa gagggagcca agattgtcaa agacctaattg 480
tccaaagctg agaagaatgg tgtgaagatt accttgacctg ttgactttgt cactgctgac 540
aagtttgatg a 551

<210> 84
<211> 571
<212> DNA
<213> Homo sapien

<400> 84
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acatgctctt agtaaaggct gcaagctggg tcacagtact gtccaagttt tcctgaagtt 480
gctgaacttc cttgtctttc ttgttcaaag taacctgaat ctctccaatt gtctcttcca 540

agtggacttt ttctctgctc aaagcatcca g

571

<210> 85
<211> 561
<212> DNA
<213> Homo sapien

<400> 85

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aatcaaagga	ttcagcatgt	ggtggaagct	gtgaggcaag	agaaacaaga	actgtatggc	120
aagttaagaa	gcacagaggc	aaacaagaag	gagacagaaa	agcagttgca	ggaagctgag	180
caagaaatgg	aggaaatgaa	agaaaagatg	agaaagtttg	ctaaatctaa	acagcagaaa	240
atcctagagc	tggaagaaga	gaatgaccgg	cttagggcag	agggtgcaccc	tgaggagat	300
acagctaaag	agtgtatgga	aacactttct	tcttccaatg	ccagcatgaa	ggaagaactt	360
gaaaggggtca	aaatggagta	tgaaaccctt	tctaagaagt	ttcagtcctt	aatgtctgag	420
aaagactctc	taagtgaaga	ggttcaagat	ttaaagcatc	agatagaagg	taatgtatct	480
aaacaagcta	acctagaggc	caccgagaaa	catgataacc	aaacgaatgt	cactgaagag	540
ggaacacagt	ctataccagg	t				561

<210> 86
<211> 795
<212> DNA
<213> Homo sapien

<400> 86

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cacagctcaa	gtaagttagg	aaactgagcc	aagtatacac	agaatacgaa	gtggcaaaac	180
tagaaggaaa	gactgacact	gctatctgct	ggcctccagt	gtcctggctc	ttttcacacg	240
ggttcaatgt	ctccagcgct	gctgctgctg	ctgcattacc	atgccctcat	tgtttttctt	300
cctctggtgt	tcaactgcat	ccttcaaaga	atctaactca	ttccagagac	cacttatttc	360
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ttggtagttt	tgttgtttaa	gctgctcaat	ttgggactta	aacaatttgt	tttcatcttg	480
tacatcctgt	aacagctgtg	ttttgctaga	aagatcactc	tccctctctt	ttagcatggc	540
ttctaacctc	ttcaattcat	tttccttttc	tttcaacaca	atctcaagtt	cttcaaactg	600
tgatgcagaa	gaggcctctt	tcaagttatg	ttgtgctact	tcctgaacat	gtgcttttaa	660
agattcattt	tcttcttgaa	gatcctgtaa	ccacttccct	gtattggcta	ggtctttctc	720
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caggagcttc	agaac					795

<210> 87
<211> 594
<212> DNA
<213> Homo sapien

<400> 87

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aatagccaat	ggctgggttat	attttcagaa	aacatgatta	gactaattca	ttaatgggtg	180
cttcaagctt	ttccttattg	gctccagaaa	attcacccac	cttttgtccc	ttcttaaaaa	240
actggaatgt	tgcatgcat	ttgacttcac	actctgaagc	aacatcctga	cagtcattcca	300
catctacttc	aaggaatatc	acgttgggaat	acttttcaga	gagggaatga	aagaaaggct	360
tgatcatttt	gcaaggccca	caccacgtgg	ctgagaagtc	aactactaca	agtttatcac	420
ctgcagcgctc	caaggcttcc	tgaaaagcag	tcttgctctc	gatctgcttc	accatcttgg	480
ctgctggagt	ctgacgagcg	gctgtaagga	ccgatggaaa	tggtatccaaa	gcaccaaaca	540

gagcttcaag actcgctgct tggcttgaat tcggatccga tatcgccatg gcct 594

<210> 88
<211> 557
<212> DNA
<213> Homo sapien

<400> 88
aagtgttagc attaatgttt tattgtcacg cagatggcaa ctgggtttat gtcttcatat 60
tttatatttt tgtaaatata aaaaattmca agtttttaaat agccaatggc tggttatatt 120
ttcagaaaac atgattagac taattcatta atgggtggct caagcttttc cttattggct 180
ccagaaaatt caccacact ttgtcccttc ttaaaaaact ggaatgttgg catgcatttg 240
acttcacact ctgaagcaac atcctgacag tcatccacat ctacttcaag gaatatcacg 300
ttggaatact tttcagagag ggaatgaaag aaaggcttga tcattttgca aggccacac 360
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aaagcagtct tgctctcgat ctgcttcacc atcttggctg ctggagtctg acgagcggct 480
gtaaggaccg atggaaatgg atccaaagca ccaaacagag cttcaagact cgctgcttgg 540
catgaattcg gatccga 557

<210> 89
<211> 561
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(561)
<223> n = A,T,C or G

<400> 89
tacaaaacttt attgaaacgc acacgcgcac acacacaaac acccctgtgg atagggaana 60
gcacctggcc acaggggtcca ctgaaacggg gaggggatgg cagcttgtaa tgtggctttt 120
gccacaacc ccttctgaca gggaaggcct tagattgagg cccacacctc catggtgatg 180
gggagctcag aatgggggtcc agggagaatt tggttagggg gaggtgctag ggaggcatga 240
gcagagggca ccctccgagt ggggtcccga gggctgcaga gtcttcagta ctgtccctca 300
cagcagctgt ctcaaggctg ggtccctcaa aggggcgtcc cagcgcgggg cctccctgcg 360
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agcacaacag acgccttgcc ggtagggaca gcaggccag ccctgtcggg tgtctcggca 480
gcaggtctgg ttatcatggc agaagtgtcc tcccacact tcacgtcctt cacaccacg 540
tganggctac nggcaggaa g 561

<210> 90
<211> 561
<212> DNA
<213> Homo sapien

<400> 90
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actgcagtgg aagccccgtg ggcagcagt atggccatcc ccgcatgcca cggcctctgg 120
gaaggggag caactggaag tccctgagac ggtaaagatg caggagtggc cggcagagca 180
gtgggcatca acctggcagg ggccaccag atgcctgtct agtgttgtgg gccatttgtc 240
cagaagggga cggcagcagc tgtagctggc tctcggggg tccaggcagc aggccacagg 300
gcagaactga ccatctgggc accgcgttcc agccaccag cctgctgtta aggccacca 360
gctcaaccag gtccacatgg tctgcctgcg tccgaactcg cggctccttg gccctgatgg 420
ttctacctgc tgtgagctgc ccagtgggaa gtatggctgc tgccaatgcc caacgccacc 480

tgctgctccg atcacctgca ctgctgcccc aagacactgt gtgtgacctg atccagagta 540
agtgcctctc caaggagaac g 561

<210> 91
<211> 541
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(541)
<223> n = A,T,C or G

<400> 91
gaatcacctt tctggttttag ctagtacttt gtacagaaca atgaggtttc ccacagcgga 60
gtctccctgg gctctgtttg gctctcggtt aggcaggcct acaccttttc ctctcctcta 120
tgagaggggg aatatgcatt aagggtgaaa gtcaccttcc aaaagtgaga aagggtattcg 180
attgctgctt caggactgtg gaattatttg gaatgtttta caaatgggtg ctacaaaaca 240
acaaaaaagg taattacaaa atgtgtacat cacaacatgc tttttaaaga cattatgcat 300
tgtgtcaca ttcccttaaa tgttgtttcc aaagggtgtc agcctctagc ccagctggat 360
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aaggagaaag cagccttcca gttaaagatc agccctcagt taaaggtcag cttcccgcan 480
gctggcctca ngcggagtct gggtcagagg gaggagcagc agcagggttg gactggggcg 540
t 541

<210> 92
<211> 551
<212> DNA
<213> Homo sapien

<400> 92
aaccggagcg cgagcagtag ctgggtgggc accatggctg ggatcaccac catcgaggcg 60
gtgaagcgca agatccaggt tctgcagcag caggcagatg atgcagagga gcgagctgag 120
cgctccagc gagaagttga gggagaaaagg cgggcccggg aacaggctga ggctgaggtg 180
gcctccttga accgtaggat ccagctgggt gaagaagagc tggaccgtgc tcaggagcgc 240
ctggccactg ccctgcaaaa gctggaagaa gctgaaaaag ctgctgatga gagtgaagaga 300
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atccaactca aagaagctaa gcacattgca gaagaggcag ataggaagta tgaagaggtg 420
gctcgtaagt tggatcat tgaaggagac ttggaacgca cagaggaacg agctgagctg 480
gcagagtccc gttgccgaga gatggatgag cagattagac tgatggacca gaacctgaag 540
tgtctgagtg c 551

<210> 93
<211> 531
<212> DNA
<213> Homo sapien

<400> 93
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gatctggttt tctggatagc caggtcatag catgggtatc agtaggaatc cgctgtagct 120
gcacaggcct cacttgctgc agttccgggg agaacacctg cactgcatgg cgttgatgac 180
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cgagggcagg cagcaggagc attgctcctg cacatcctcg atgtcaatgg agtacacagc 300
tttgctggca cactttccct ggcagtaatg aatgtccact tcctcttggg acttacaatc 360
tcccactttg atgtactgca ccttggctgt gatgtctttg caatcaggct cctcacatgt 420

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gtcacagcag gtgcctggaa ttttcacgat tttgcctcct tcagccagac acttgtgttc 480
atcaaatggt gggcagcccg tgaccctctt ctcccagatg tactctcttc t 531
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<210> 94

<211> 531

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(531)

<223> n = A,T,C or G

<400> 94

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ctgcagagtc atcgtgtcaa ttgtgaccat ggaccccggc cttcatgtgc caacagccag 120
tctcctgttc ggggtggagga gacgtgtggc tgccgctgga cctgcccttg tgtgtgcacg 180
ggcagttcca ctgggcacat cgtcaccttc gatgggcaga atttcaagct tactggtagc 240
tgctcctatg tcatctttca aaacaaggag caggacctgg aagtgtcctt ccacaatggg 300
gcctgcagcc ccggggcaaa acaagcctgc atgaagtcca ttgagattaa gcatgctggc 360
gtctctgctg agctgcacag taacatggag atggcagtgg atgggagact ggtccttgcc 420
ccgtacgttg gtgaaaacat ggaagtcagc atctacggcg ctatcatgta tgaagtcagg 480
tttacccttc ttggccacat cctcacatac accgccncaa aacaacgagt t 531
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<210> 95

<211> 605

<212> DNA

<213> Homo sapien

<400> 95

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tctcgatagt rwcaactkk r ytsramskma agkgyratgr wmttksyw gw rasyktmwwm 120
rsgraraytt agacaycccm cctcwagagc gsagkaccar gtgcagaggt ggactctttc 180
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aggaggratg ccttccttgt cytggatctt tgcyttgacr ttctcratgg tgtcactcgg 540
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tctaa 605
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<210> 96

<211> 531

<212> DNA

<213> Homo sapien

<400> 96

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gaggaggtga agcatctcaa acataatctc gaaaaagtgg aaggagaaaag aaaagaggct 180
caagacatgc ttaatcactc agaaaaggaa aagaataatt tagagataga tttaaactac 240
aaacttaaat cattacaaca acggttagaa caagaggtaa atgaacacaa agtaacacaa 300
gctcgtttta ctgacaaaca tcaatctatt gaagaggcaa agtctgtggc aatgtgtgag 360
atggaaaaaa agctgaaaga agaaagagaa gctcgagaga aggctgaaaa tcgggttggt 420
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cagattgaga aacagtgttc catgctagac gttgatctga agcaatctca gcagaaacta 480
gaacatttga ctggaaataa agaaaggatg gaggatgaag ttaagaatct a 531

<210> 97
<211> 1017
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(1017)
<223> n = A,T,C or G

<400> 97
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ccgggccttc agcagccgct cctacacgag tgggcccgtg tcccgcacatca gctcctcgag 120
cttctcccgga gtgggcagca gcaactttcg cggtaggctg ggccggcggt atgggtggggc 180
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cctggagggtg gaccccaaca tccaggccgt gcgcacccag gagaaggagc agatcaagac 300
cctcaacaac aagtttgccct ccttcataga caaggtacgg ttcctggagc agcagaacaa 360
gatgctggag accaagtgga gcctcctgca gcagcagaag acggctcgaa gcaacatgga 420
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gaccgacgag atcaacttcc tcaggcagct gtatgaagag gagatccggg agctgcagtc 720
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<210> 98
<211> 561
<212> DNA
<213> Homo sapien

<400> 98
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ggcagggggc tacccagggg ctccctatcc tggggcctac cccgggcagg cacccccagg 180
ggcttatcct ggacaggcac ctccaggcgc ctaccctgga gcacctggag cttatcccgg 240
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aacaattctg ggcacgggtg agcccaatgc aaacagaatt gcttttagatt tccaaagagg 480
gaatgatgtt gccttcact ttaaccacg cttcaatgag aacaacagga gagtattgg 540
ttgcaatata aagctggata a 561

<210> 99
<211> 636
<212> DNA
<213> Homo sapien

<400> 99

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tgttgtagtc	agacagggtr	cgwccatctt	ccagctgttt	yccrgcaaaag	atcaacctct	180
gctgatcagg	aggratgcct	tccttatctt	ggatctttgc	cttgacattc	tcgatgggtg	240
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ggratgcctt	ccttgctcytg	gatctttgcy	ttgacrttct	caatgggtgtc	actcggctcc	480
acttcgagag	tgatgggtctt	accagtcagg	gtcttcacga	agatctgcat	cccacctcta	540
agacggagca	ccaggtgcag	ggtggactct	ttctggatgg	ttgtagtcag	acaggggtgcg	600
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<210> 100

<211> 697

<212> DNA

<213> Homo sapien

<400> 100

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ccagaaagag	tccaccctgc	acctgggtgct	ccgtcttaga	ggtagggatgc	agatcttcgt	120
gaagaccctg	actggttaaga	ccatcactct	cgaagtggag	ccgagtgaca	ccattgagaa	180
ygtcaargca	aagatccarg	acaaggaagg	catycctcct	gaccagcaga	ggttgatctt	240
tgctsggaaa	gcagctggaa	gatgggagca	ccctgtctga	ctacaacatc	cagaaagagt	300
cyaccctgca	cctgggtgctc	cgtctcagag	gtgggatgca	ratcttcgtg	aagaccctga	360
ctggtaagac	catcaccctc	gaggtggagc	ccagtgcac	catcgagaat	gtcaaggcaa	420
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atcamcmwtg	akktcgakys	castkwact	wcrakaamg	tyrwwgcawa	gatccmagac	660
aaggaaggca	ttcctcctga	ccagcagagg	ttgatct			697

<210> 101

<211> 451

<212> DNA

<213> Homo sapien

<400> 101

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aggcaggcgt	caccataatt	tttgatattt	tagtagagac	atggtttcgc	catgttggtc	180
gggtgggtct	cgaactcctg	acctaagtg	atctgtcctg	gcctcccaaa	gtgttgggat	240
tacaggcgaa	agccaacgct	ccgggpcagg	gaacaacttt	agaatgaagg	aaatatgcaa	300
aagaacatca	catcaaggat	caattaatta	ccatctatta	attactatat	gtgggttaatt	360
atgactatct	cccaagcatt	ctacgttgac	tgcttgagaa	gatgtttgtc	ctgcatgggtg	420
gagagtggag	aagggccagg	attcttaggt	t			451

<210> 102

<211> 571

<212> DNA

<213> Homo sapien

<400> 102

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ctggaggagg	cagaaaaagc	tgcagatgag	agtgaagag	gaatgaaggt	gatagaaaac	180

cgggccatga	aggatgagga	gaagatggag	attcaggaga	tgcagctcaa	agaggccaag	240
cacattgcgg	aagaggctga	ccgcaaatac	gaggaggtag	ctcgtaagct	ggatcatcctg	300
gagggtgagc	tggagagggc	agaggagcgt	gcggagggtgt	ctgaactaaa	atgtggtgac	360
ctggaagaag	aactcaagaa	tgttactaac	aatctgaaat	ctctggaggc	tgcatctgaa	420
aagtattctg	aaaaggagga	caaatatgaa	gaagaaatta	aacttctgtc	tgacaaactg	480
aaagaggctg	agaccctgtc	tgaatttgca	gagagaacgg	ttgcaaaact	ggaaaagaca	540
attgatgacc	tggaagagaa	acttgcccag	c			571

<210> 103

<211> 451

<212> DNA

<213> Homo sapien

<400> 103

gtgcacaggt	cccatTTatt	gtagaaaata	ataataatta	cagtgatgaa	tagctcttct	60
taaattacaa	aacagaaacc	acaaagaagg	aagaggaaaa	accccaggac	ttccaaggg	120
gaagctgtcc	cctcctcct	gccaccctcc	caggctcatt	agtgtccttg	gaaggggcag	180
aggactcaga	gggatcagt	ctccaggggc	cctgggctga	agcgggtgag	gcagagagtc	240
ctgaggccac	agagctgggc	aacctgagcc	gcctctctgg	ccccctcccc	caccactgcc	300
caaacctgtt	tacagcacct	tgcgccctcc	cctctaaacc	cgtccatcca	ctctgcactt	360
cccaggcagg	tgggtgggccc	aggcctcagc	catactcctg	ggcgcggtt	tcggtgagca	420
aggcacagtc	ccagaggtga	tatcaaggcc	t			451

<210> 104

<211> 441

<212> DNA

<213> Homo sapien

<400> 104

gcaaggaact	ggtctgctca	cacttgctgg	cttgccgcatc	aggactggct	ttatctcctg	60
actcacgggtg	caaaggtgca	ctctgcgaac	gttaagtccg	tccccagcgc	ttggaatcct	120
acggccccc	cagccggatc	ccctcagcct	tccaggctcct	caactcccgt	ggacgctgaa	180
caatggcctc	catggggcta	caggtaatgg	gcacgcgct	ggccgtcctg	ggctggctgg	240
ccgtcatgct	gtgctgcgcg	ctgcccattg	ggcgctgac	ggccttcac	ggcagcaaca	300
ttgtcacctc	gcagaccatc	tgggagggcc	tatggatgaa	ctgcgtgggtg	cagagcaccg	360
gccagatgca	gtgcaagggtg	tacgaactcg	tgctggcact	gccgcaggac	ctgcaggcgg	420
cccgcgcct	cgtcatcctc	a				441

<210> 105

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(509)

<223> n = A,T,C or G

<400> 105

tgcaaaagg	acacaggggt	tcaaaaataa	aaatttctct	tccccctccc	caaacctgta	60
ccccagctcc	ccgaccacaa	cccccttct	cccccgggga	aagcaagaag	gagcaggtgt	120
ggcatctgca	gctgggaaga	gagaggccgg	ggaggtgccg	agctcggtgc	tggctctttt	180
ccaaatataa	atacntgtgt	cagaactgga	aaatcctcca	gcaccacca	cccaagcact	240
ctccgttttc	tgccggtgtt	tggagagggg	cggggggcag	ggcgccagg	caccggctgg	300
ctgcggtcta	ctgcatccgc	tgggtgtgca	ccccgcgagc	ctcctgctgc	tcattgtaga	360

agagatgaca	ctcgggggtcc	ccccggatgg	tgggggctcc	ctggatcagc	ttcccgggtg	420
tgggggttcac	acaccagcac	tccccacgct	gcccgttcag	agacatcttg	cactgtttga	480
ggttgtagac	gccatgcttg	tcacagttg				509

<210> 106

<211> 571

<212> DNA

<213> Homo sapien

<400> 106

gggttgagg	gactggttct	ttatttcaaa	aagacacttg	tcaatattca	gtatcaaaac	60
agttgcacta	ttgatttctc	tttctcccaa	tcggccccaa	agagaccaca	taaaaggaga	120
gtacatttta	agccaataag	ctgcaggatg	tacacctaac	agacctccta	gaaaccttac	180
cagaaaatgg	ggactgggta	gggaaggaaa	cttaaaagat	caacaaaactg	ccagcccacg	240
gactgcagag	gctgtcacag	ccagatgggg	tggccagggt	gccacaaacc	caaagcāaag	300
tttcaaaata	atataaaatt	taaaaagttt	tgtacataag	ctattcaaga	tttctccagc	360
actgactgat	acaaagcaca	attgagatgg	cacttctaga	gacagcagct	tcaaaccacg	420
aaaagggatga	tgagatgagt	ttcacatggc	taaatcagtg	gcaaaaaacac	agtcttcttt	480
ctttctttct	ttcaaggagg	caggaaagca	attaagtggg	cacctcaaca	taaggggggac	540
atgatccatt	ctgtaagcag	ttgtgaaggg	g			571

<210> 107

<211> 555

<212> DNA

<213> Homo sapien

<400> 107

caggaaccgg	agcgcgagca	gtagctgggt	gggcaccatg	gctgggatca	ccaccatcga	60
ggcggatgaag	cgcaagatcc	aggttctgca	gcagcaggca	gatgatgcag	aggagcgagc	120
tgagcgctc	cagcgagaag	ttgagggaga	aaggcgggcc	cggaacagg	ctgaggctga	180
ggtggcctcc	ttgaaccgta	ggatccagct	ggttgaagaa	gagctggacc	gtgctcagga	240
gcgcctggcc	actgccctgc	aaaagctgga	agaagctgaa	aaagctgctg	atgagagtga	300
gagaggtatg	aaggttattg	aaaaccgggc	cttaaaagat	gaagaaaaga	tggaaactcca	360
ggaaatccaa	ctcaaagaag	ctaagcacat	tgcagaagag	gcagatagga	agtatgaaga	420
ggtggctcgt	aagttgggtga	tcattgaagg	agacttgga	cgcacagagg	aacgagctga	480
gctggcagag	tcccgttgcc	gagagatgga	tgagcagatt	agactgatgg	accagaacct	540
gaagtgtctg	agtgc					555

<210> 108

<211> 541

<212> DNA

<213> Homo sapien

<400> 108

atctacgtca	tcaatcaggc	tggagacacc	atgttcaatc	gagctaagct	gctcaatatt	60
ggctttcaag	aggccttgaa	ggactatgat	tacaactgct	ttgtgttcag	tgatgtggac	120
ctcattccga	tggacgaccg	taatgcctac	agggtttttt	cgcagccacg	gcacatttct	180
gttgcaatgg	acaagttcgg	gtttagcctg	ccatattgttc	agtatttttg	agggtgtctct	240
gctctcagta	aacaacagtt	tcttgccatc	aatggattcc	ctaataatta	ttgggggttg	300
ggaggagaag	atgacgacat	ttttaacaga	ttagttcata	aaggcatgtc	tatatcacgt	360
ccaaatgctg	tagtagggag	gtgtcgaatg	atccggcatt	caagagacaa	gaaaaatgag	420
cccaatcctc	agaggtttga	ccggatcgca	catacaaagg	aaacgatgcg	cttcgatggg	480
ttgaactcac	ttacctacaa	ggtgttggat	gtcagagata	cccgttatat	acccaaatca	540
c						541

<210> 109
 <211> 411
 <212> DNA
 <213> Homo sapien

<400> 109

ctagacctct	aattaaaagg	cacaatcatg	ctggagaatg	aacagtctga	ccccgagggc	60
cacagcgaat	tttagggaag	gaggcaaaga	ggtgagaagg	gaaaggaaaag	aaggaaggaa	120
ggagaacaat	aagaactgga	gacgttgggt	gggtcagga	gtgtggtgga	ggctcggaga	180
gatggtaaac	aaacctgact	gctatgagtt	ttcaacccca	tagtctaggg	ccatgagggc	240
gtcagttctt	ggtggctgag	ggtccttcca	cccagccac	ctgggggagt	ggagtgggga	300
gttctgccag	gtaagcagat	gttgtctccc	aagtctctga	cccagatgtc	tggcaggata	360
acgctgacct	gttccctcaa	caagggacct	gaaagtaatt	ttgctcttta	c	411

<210> 110
 <211> 451
 <212> DNA
 <213> Homo sapien

<400> 110

ccgaattcaa	gcgtcaacga	tccytccctt	accatcaaat	caattggcca	ccaatggtac	60
tgaacctacg	agtacaccga	ctacgggcgg	actaatcttc	aactcctaca	tacttcccc	120
attattccta	gaaccaggcg	acctgcgact	ccttgacgtt	gacaatcgag	tagtactccc	180
gattgaagcc	cccattcgta	taataattac	atcacaagac	gtcttgcaact	catgagctgt	240
ccccacatta	ggcttaaaaa	cagatgcaat	tcccggacgt	ctaagccaaa	ccactttcac	300
cgctacacga	ccgggggtat	actacggtca	atgctctgaa	atctgtggag	caaaccacag	360
tttcatgccc	atcgctctag	aattaattcc	cctaaaaatc	tttgaaatag	ggcccgtatt	420
tacctatag	cacccctct	acccctctca	g			451

<210> 111
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 111

gctcttcaca	cttttattgt	taattctctt	cacatggcag	atacagagct	gtcgtcttga	60
agaccaccac	tgaccaggaa	atgccacttt	tacaaaatca	tcccccttt	tcatgattgg	120
aacagttttc	ctgaccgtct	gggagcggtg	aagggtgacc	agcacatttg	cacatgcaaa	180
aaaggagtga	ccccaaggcc	tcaaccacac	ttcccagagc	tcaccatggg	ctgcagggtga	240
cttgccagggt	ttggggttcg	tgagctttcc	ttgctgctgc	ggtggggagg	ccctcaagaa	300
ctgagaggcc	ggggtatgct	tcatgagtgt	taacattttac	gggacaaaag	cgcatcatta	360
ggataaggaa	cagccacagc	acttcatgct	tgtgaggggt	agctgtagga	gcgggtgaaa	420
ggattccagt	ttatgaaaat	ttaaagcaaa	caacggtttt	tagctgggtg	ggaaacagga	480
aaactgtgat	gtcggccaat	gaccaccatt	tttctgcccc	tgtgaagggtc	cccatgaaac	540
c						541

<210> 112
 <211> 521
 <212> DNA
 <213> Homo sapien

<400> 112

caagcgcttg	gcgtttggac	ccagttcagt	gaggttcttg	ggttttgtgc	ctttggggat	60
tttggtttga	cccaggggtc	agccttagga	aggtcttcag	gaggaggccg	agttcccctt	120
cagtaccacc	cctctctccc	cactttccct	ctcccggcaa	catctctggg	aatcaacagc	180

atattgacac	gttgagccg	agcctgaaca	tgcccctcgg	ccccagcaca	tggaaaaccc	240
ccttccttgc	ctaaggtgtc	tgagtttctg	gctcttgagg	catttccaga	cttgaaattc	300
tcatcagtc	attgctcttg	agtctttgca	gagaaacctca	gatcaggtgc	acctgggaga	360
aagactttgt	ccccacttac	agatctatct	cctcccttgg	gaagggcagg	gaatggggac	420
ggtgtatgga	ggggaaggga	tctcctgcgc	ccttcattgc	cacacttggt	gggaccatga	480
acatcttttag	tgtctgagct	tctcaaatta	ctgcaatagg	a		521

<210> 113

<211> 568

<212> DNA

<213> Homo sapien

<400> 113

agcgtcaaat	cagaatggaa	aagactcaaa	accatcatca	acaccaagat	caaaaggaca	60
agratccttc	aagaaacagg	aaaaaactcc	taaaacacca	aaaggaccta	gttctgtaga	120
agacattaaa	gcaaaaatgc	aagcaagtat	agaaaaaggt	ggttctcttc	ccaaagtgga	180
agccaaattc	atcaattatg	tgaagaattg	cttcgggatg	actgaccaag	aggctattca	240
agatctctgg	cagtggagga	agtctcttta	agaaaatagt	ttaaacaatt	tgtaaaaaaa	300
ttttcogtct	tatttcattt	ctgtaacagt	tgatatctgg	ctgtcctttt	tataatgcag	360
agtgagaact	ttccctaccg	tgtttgataa	atggtgtcca	ggttctattg	ccaagaatgt	420
gttggtccaaa	atgcctgttt	agttttttaa	gatggaactc	caccctttgc	ttgggttttaa	480
gtatgtatgg	aatgttatga	taggacatag	tagtagcggt	ggtcagacat	ggaaatggtg	540
ggsmgacaaa	aatatacatg	tgaataaa				568

<210> 114

<211> 483

<212> DNA

<213> Homo sapien

<400> 114

tccgaattcc	aagcgaatta	tggacaaacg	attcctttta	gaggattact	tttttcaatt	60
tcgggttttag	taatctaggc	tttgctgta	aagaatacaa	cgatggattt	taaatactgt	120
ttgtggaatg	tgtttaaagg	attgattcta	gaacctttgt	atatttgata	gtatttctaa	180
ctttcatttc	tttactgttt	gcagttaatg	ttcatgttct	gctatgcaat	cgtttatatg	240
cacgtttctt	taattttttt	agattttcct	ggatgtatag	tttaaacaac	aaaaagtcta	300
tttaaaactg	tagcagtagt	ttacagttct	agcaaagagg	aaagttgtgg	ggttaaactt	360
tgtattttct	ttcttataga	ggcttctaaa	aaggatattt	tatatgttct	ttttaacaaa	420
tattgtgtac	aacctttaa	acatcaatgt	ttggatcaaa	acaagaccca	gcttattttc	480
tgc						483

<210> 115

<211> 521

<212> DNA

<213> Homo sapien

<400> 115

tgtggtggcg	cgggctgagg	tggaggccca	ggactctgac	cctgcccctg	ccttcagcaa	60
ggcccccggc	agcgccggcc	actacgaact	gccgtgggtt	gaaaaatata	ggccagtaaa	120
gctgaatgaa	attgtcggga	atgaagacac	cgtgagcagg	ctagaggtct	ttgcaaggga	180
aggaaatgtg	cccaacatca	tcattgcggg	ccctccagga	accggcaaga	ccacaagcat	240
tctgtgcttg	gccccggccc	tgctgggccc	agcactcaaa	gatgccatgt	tggaaactcaa	300
tgcttcaaat	gacaggggca	ttgacgttgt	gaggaataaa	attaaaatgt	ttgctcaaca	360
aaaagtcact	cttcccaaag	gccgacataa	gatcatcatt	ctggatgaag	cagacagcat	420
gaccgacgga	gcccagcaag	ccttgaggag	aaccatggaa	atctactcta	aaaccactcg	480
ttcgcccttg	cttgtaatgc	ttcggataag	atcatcgagc	c		521

<210> 116
<211> 501
<212> DNA
<213> Homo sapien

<400> 116
ctttgcaaag cttttatttc atgtctgcgg catggaatcc acctgcacat ggcatcttag 60
ctgtgaagga gaaagcagtg cacgagaagg aatgagtggg cggaaccaac ggccctccaca 120
agctgccttc cagcagcctg ccaaggccat ggcagagaga gactgcaaac aaacacaagc 180
aaacagagtc tcttcacagc tggagtctga aagctcatag tggcatgtgt gaatctgaca 240
aaattaaaaa tgtgcatagt ccattacatg cataaaacac taataataat cctgtttaca 300
cgtgactgca gcaggcaggt ccagctccac cactgccctc ctgccacatc acatcaagtg 360
ccatggttta gagggttttt catatgtaat tcttttattc tgtaaaagggt aacaaaatat 420
acagaacaaa actttccctt tttaaaacta atgttacaaa tctgtattat cacttgata 480
taaatagtat ataagctgat c 501

<210> 117
<211> 451
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(451)
<223> n = A,T,C or G

<400> 117
caagggatat atgttgaggg tacrgrgtga cactgaacag atcaciaaagc acgagaaaca 60
ttagttctct ccctccccag cgtctccttc gtctccctgg ttttccgatg tccacagagt 120
gagattgtcc ctaagtaact gcatgatcag agtgctgkct ttataagact cttcattcag 180
cgtatccaat tcagcaattg cttcatcaaa tgccgttttt gccaggctac aggcccttttc 240
aggagagttt agaattctcat agtaaaaagac tgagaaattt agtgccagac caagacgaat 300
tggtgtgtga ggctgcattt ctttcttact aatttcaaat gcttcttggt aagcctgctg 360
ggagttcgac acaagtgggt tgtttgttgc tccagatgcc acttcagaaa gatacctaaa 420
ataatctcct ttcattttca aagtagaaca c 451

<210> 118
<211> 501
<212> DNA
<213> Homo sapien

<400> 118
tccggagccg gggtagtcgc cgccgccgcc gccggtgcag ccaactgcagg caccgctgcc 60
gccgcctgag tagtgggctt aggaaggaag aggtcatctc gctcggagct tcgctcggaa 120
gggtctttgt tccctgcagc cctcccacgg gaatgacaat ggataaaagt gagctggtac 180
agaaagccaa actcgtgag caggctgagc gatatgatga tatggctgca gccatgaagg 240
cagtcacaga acaggggcat gaactctcca acgaagagag aaatctgctc tctgttgctt 300
acaagaatgt ggtaaggccg cccgccgctc ttcctggcgt gtcattctcca gcattgagca 360
gaaaacagag aggaatgaga agaagcagca gatgggcaaa gaggaccgtg agaagataga 420
ggcagaactg caggacatct gcaatgatgt tctggagctt gttggacaaa tatcttattc 480
caatgctaca caaccagaa a 501

<210> 119
<211> 391

<212> DNA

<213> Homo sapien

<400> 119

aaaaagcagc	argttcaaca	caaaatagaa	atctcaaag	taggatagaa	caaaaccaag	60
tgtgtgaggg	gggaagcaac	agcaaaagga	agaaatgaga	tgttgcaaaa	aagatggagg	120
agggttcccc	tctcctctgg	ggactgactc	aaacactgat	gtggcagtat	acaccattcc	180
agagtcaggg	gtgttcattc	ttttttggga	gtaagaaaag	gtggggatta	agaagacgtt	240
tctggaggct	tagggaccaa	ggctggtctc	tttccccct	cccaaccccc	ttgatccctt	300
tctctgatca	ggggaaagga	gctcgaatga	gggaggtaga	gttgaaaagg	gaaaggattc	360
cacttgacag	aatgggacag	actccttccc	a			391

<210> 120

<211> 421

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(421)

<223> n = A,T,C or G

<400> 120

tggcaatagc	acagccatcc	aggagctctt	cargcgcctc	tgggagcagt	tactgccat	60
gttccgccgg	aaggccttcc	tccactggta	cacaggcgag	ggcatggacg	agatggagtt	120
caccgaggct	gagagcaaca	tgaacgacct	cgtctctgag	tatcaagcag	taccaggatg	180
ccaccgcaga	agaggaggag	gatttcggtg	aggaggccga	agaggaggcc	taaggcagag	240
cccccatcac	ctcaggcttc	tcagtccctt	tagccgtctt	actcaactgc	ccctttcctc	300
tccctcagaa	tttgtgtttg	ctgcctctat	cttgtttttt	gttttttctt	ctgggggggt	360
ctagaacagt	gcctggcaca	tagtaggcgc	tcaataaata	cttggttgnt	gaatgtctcc	420
t						421

<210> 121

<211> 206

<212> DNA

<213> Homo sapien

<400> 121

agctggcgct	agggtcgggt	tgtgaaatac	agcgtrgtca	gcccttgccg	tcagtgtaga	60
aaccacgccc	tgtaaggctg	gtcttcgctc	atctgctttt	ttctgaaata	cactaagagc	120
agccacaaaa	ctgtaacctc	aaggaaacca	taaagcttgg	agtgccttaa	tttttaacca	180
gtttccaata	aaacggttta	ctacct				206

<210> 122

<211> 131

<212> DNA

<213> Homo sapien

<400> 122

ggagatgaag	atgaggaagc	tgagtcagct	acgggcargc	gggcagctga	agatgatgag	60
gatgacgatg	tcgataccaa	gaagcagaag	accgacgagg	atgactagac	agcaaaaaag	120
gaaaagttaa	a					131

<210> 123

<211> 231

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(231)
<223> n = A,T,C or G

<400> 123
gatgaaaatt aaatacttaa attaatcaaa aggcactacg ataccaccta aaacctactg 60
cctcagtggc agtakgctaa kgaagatcaa gctacagsac atyatcta atgaatgtta 120
gcaattacat akcargaagc atgtttgctt tccagaagac tatggcnacaa tggtcattwg 180
ggcccaagag gatatttggc cnggaaagga tcaagataga tnaangtaaa g 231

<210> 124
<211> 521
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 124
gagtagcaac gcaaagcgct tggatttgag tctgtgggsg acttcggttc cggctctctgc 60
agcagccgtg atcgcttagt ggagtgttta gggtagttgg ccaggatgcc gaatatcaaa 120
atcttcagca ggcagctccc accaggactt atctcasaaa attgctgacc gcctgggcct 180
ggagctaggg aagggtggtga ctaagaaatt cagcaaccag gagacctgtg tggaaattgg 240
tgaaagtgtg ccgtggagag gatgtctaca ttgttcagag tggntgtggc gaaatcaatg 300
acaattttaat ggagcttttg atcatgatta atgcctgcaa gattgcttca gccagccggg 360
ttactgcagt catcccatgc ttcccttatg ccccggcagg ataagaaaga tnagagccgg 420
gccgccaatc tcagccaagc ttggtgcaaa tatgctatct gtagcagtgcc agatcatatt 480
atcaccatgg acctacatgc ttctcaaatt canggctttt t 521

<210> 125
<211> 341
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(341)
<223> n = A,T,C or G

<400> 125
atgcaaaagg ggacacaggg ggttcaaaaa taaaaatttc tcttccccct ccccaaacct 60
gtaccccagc tccccgacca caacccctt cctcccccg ggaaagcaag aaggagcagg 120
tgtggcatct gcagctggga agagagaggc cggggagggtg ccgagctcgg tgctggtctc 180
tttccaaata taaatacgtg tgtcagaact ggaaaatcct ccagcaccga ccaccaagc 240
actctccgtt ttctgcgggt gtttgagagag gggcgngggg caggggagcc aggcaccggc 300
tggtgaggt ctactgcatc cgctgggtgt gcaccccgcg a 341

<210> 126
<211> 521

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(521)

<223> n = A,T,C or G

<400> 126

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caggcccaga gtggcactgg acagaccatg caggatgatgc agcagatcat cactaacaca      120
ggagagatcc agcagatccc ggtgcagctg aatgccgggc agctgcagta tatccgctta      180
gcccagcctg tatcaggcac tcaagttgtg caggacaga tccagacact tgccaccaat      240
gctcaacaga ttacacagac agaggtccag caaggacagc agcagttcaa gccagttcac      300
aagatggaca gcagctctac cagatccagc aagtcaccat gcctgcgggc cangacctcg      360
ccagcccatg ttcattccagt caagccaacc agcccttcna cgggcaggcc ccccagggtga      420
ccggcgactg aagggcctga gctggcaagg ccaangacac ccaacacaat ttttgccata      480
cagccccag  gcaatgggca cagcctttct tcccagagga c                      521

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<210> 127

<211> 351

<212> DNA

<213> Homo sapien

<400> 127

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tgagatttat tgcatttcat gcagcttgaa gtccatgcaa aggrgactag cacagttttt      60
aatgcattta aaaaataaaa gggaggtggg cagcaaacac acaaagtcct agtttcctgg      120
gtccctggga gaaaagagtg tggcaatgaa tccaccact ctccacaggg aataaatctg      180
tctcttaaat gcaaagaatg tttccatggc ctctggatgc aaatacacag agctctgggg      240
tcagagcaag ggatggggag aggaccacga gtgaaaaagc agctacacac attcacctaa      300
ttccatctga gggcaagaac aacgtggcaa gtcttggggg tagcagctgt t                      351

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<210> 128

<211> 521

<212> DNA

<213> Homo sapien

<400> 128

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tccagacatg ctctgtcct aggcggggag caggaaccag acctgctatg ggaagcagaa      60
agagttaagg gaaggtttcc tttcattcct gtctcttctc ttttgctttt gaacagtttt      120
taaataact aatagctaag tcatttgcca gccaggctcc ggtgaacagt agagaacaag      180
gagcttgcta agaattaatt ttgctgtttt tcacccatt caaacagagc tgccctgttc      240
cctgatggag ttccattcct gccagggcac ggctgagtaa cacgaagcca ttcaagaaag      300
gcgggtgtga aatcactgcc accccatgga cagaccctc actcttcctt cttagccgca      360
gcgctactta ataaatatat ttatactttg aaattatgat aaccgatttt tcccatgcgg      420
catcctaagg gcacttgcca gctcttatcc ggacagtcaa gcactgttgt tggacaacag      480
ataaaggaaa agaaaaagaa gaaaacaacc gcaacttctg t                      521

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<210> 129

<211> 521

<212> DNA

<213> Homo sapien

<400> 129

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tgagacggac cactggcctg gtccccctc atktgctgtc gtaggacctg acatgaaacg      60

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cagatctagt	ggcagagagg	aagatgatga	ggaacttctg	agacgtcggc	agcttcaaga	120
agagcaatta	atgaagctta	actcaggcct	gggacagttg	atcttgaaag	aagagatgga	180
gaaagagagc	cgggaaaggt	catctctgtt	agccagtcgc	tacgattctc	ccatcaactc	240
agcttcacat	attccatcat	ctaaaaactgc	atctctccct	ggctatggaa	gaaatgggct	300
tcaccggcct	gtttctaccg	acttcgctca	gtataacagc	tatggggatg	tcagcggggg	360
agtgcgagat	taccagacac	ttccagatgg	ccacatgcct	gcaatgagaa	tggaccgagg	420
agtgtctatg	cccaacatgt	tggaaaccaa	gatatttcca	tatgaaatgc	tcattggtgac	480
caacagagggg	ccgaaaccaa	atctcagaga	ggtggacaga	a		521

<210> 130

<211> 270

<212> DNA

<213> Homo sapien

<400> 130

tcacttttatt	tttcttgtat	aaaaacccta	tgttgtagcc	acagctggag	cctgagtccg	60
ctgcaaggag	actctgggtg	gggtcttgac	gaggtgggtca	gtgaactcct	gatagggaga	120
cttgggtgaat	acagtctcct	tccagaggtc	gggggtcagg	tagctgtagg	tcttagaaat	180
ggcatcaaag	gtggccttgg	cgaagttgcc	cagggtggca	gtgcagcccc	gggctgaggt	240
gtagcagtca	tcgataccag	ccatcatgag				270

<210> 131

<211> 341

<212> DNA

<213> Homo sapien

<400> 131

ctggaatata	gacccgtgat	cgacaaaact	ttgaacgagg	ctgactgtgc	caccgtcccc	60
ccagccattc	gctcctactg	atgagacaag	atgtgggtgat	gacagaaatca	gcttttgtaa	120
ttatgtataa	tagctcatgc	atgtgtccat	gtcataactg	tcttcatacg	cttctgcact	180
ctgggggaaga	aggagtacat	tgaagggaga	ttggcaccta	gtggctggga	gcttgccagg	240
aacccagtgg	ccagggagcg	tggcacttac	ctttgtccct	tgcttcattc	ttgtgagatg	300
ataaaaactgg	gcacagctct	taaataaaat	ataaatgaac	a		341

<210> 132

<211> 844

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(844)

<223> n = A,T,C or G

<400> 132

tgaatgggga	ggagctgacc	caggaaatgg	agcttgngga	gaccaggcct	gcaggggatg	60
gaaccttcca	gaagtgggca	tctgtgggtg	tgccctcttg	gaaggagcag	aagtacacat	120
gccatgtgga	acatgagggg	ctgcctgagc	ccctcaccct	gagatggggc	aaggaggagc	180
ctccttcac	caccaagact	aacacagtaa	tcattgctgt	tccggttgtc	cttggagctg	240
tggtcatcct	tggagctgtg	atggcttttg	tgatgaagag	gaggagaaac	acaggtggaa	300
aaggagggga	ctatgctctg	gctccaggct	cccagagctc	tgatatgtct	ctcccagatt	360
gtaaagtgtg	aagacagctg	cctgggtgtg	acttgggtgac	agacaatgtc	ttcacacatc	420
tcctgtgaca	tcagagagacc	tcagtctctc	ttagtcaagt	gtctgatgtt	ccctgtgagt	480
ctgcggggtc	aaagtgaaga	actgtggagc	ccagtccacc	cctgcacacc	aggaccctat	540
ccctgcactg	ccctgtgttc	ccttccacag	ccaaccttgc	tgctccagcc	aaacattggt	600

ggacatctgc	agcctgtcag	ctccatgcta	ccctgacctt	caactcctca	cttccacact	660
gagaataata	atttgaatgt	gggtggctgg	agagatggct	cagcgctgac	tgctcttcca	720
aaggctcctga	gttcaaattcc	cagcaaccac	atgggtggctc	acaaccatct	gtaatgggat	780
ctaataccct	cttctgcagt	gtctgaagac	asctacagtg	tacttacata	taataataaaa	840
taag						844

<210> 133
 <211> 601
 <212> DNA
 <213> Homo sapien

<400> 133						
ggccgggagc	gcgcgcccc	gccacacgca	cgccggggcgt	gccagtttat	aaagggagag	60
agcaagcagc	gagtcttgaa	gctctgtttg	gtgcttttga	tccatttcca	tcgggtcctta	120
cagccgctcg	tcagactcca	gcagccaaga	tggtgaagca	gatcgagagc	aagactgctt	180
ttcaggaagc	cttgacgct	gcaggtgata	aacttgtagt	agttgacttc	tcagccacgt	240
ggtgtggggc	ttgcaaaatg	atcaagcctt	tctttcattc	cctctctgaa	aagtattcca	300
acgtgatatt	ccttgaagta	gatgtggatg	actgtcagga	tggtgcttca	gagtgtgaag	360
tcaaattgcat	gccaacattc	cagtttttta	agaagggaca	aaaggtgggt	gaattttctg	420
gagccaataa	ggaaaagctt	gaagccacca	ttaatgaatt	agtctaatac	tgttttctga	480
aaatataacc	agccattggc	tattttaaac	ttgtaatttt	tttaattttac	aaaaatataa	540
aatatgaaga	cataaaccm	gttgccatct	gcgtgacaat	aaaacattaa	tgctaacact	600
t						601

<210> 134
 <211> 421
 <212> DNA
 <213> Homo sapien

<400> 134						
tcacataaga	aattttaagca	agttacrccta	tcttaaaaaa	cacaacgaat	gcatttttaat	60
agagaaaccc	ttccctccct	ccacctccct	ccccaccct	cctcatgaat	taagaatcta	120
agagaagaag	taaccataaa	accaagtttt	gtggaatcca	tcattccagag	tgcttacatg	180
gtgattaggt	taatattgcc	ttcttacaac	atttctatct	taaaaaaaaa	tataaccttg	240
attgcttatt	acaaaaaaaa	tcagtacaaa	agttcaatat	attgaaaaat	gctttttccc	300
tccctcacag	caccgtttta	tatatagcag	agaataatga	agagattgct	agtctagatg	360
gggcaatctt	caaattacac	caagacgcac	agtggtttat	ttaccctccc	cttctcataa	420
g						421

<210> 135
 <211> 511
 <212> DNA
 <213> Homo sapien

<400> 135						
ggaaaggatt	caagaattag	aggacttgct	tgctrragaa	aaagacaact	ctcgtcgcat	60
gctgacagac	aaagagagag	agatggcgga	aataagggat	caaatgcagc	aacagctgaa	120
tgactatgaa	cagcttcttg	atgtaaagtt	agccctggac	atggaaatca	gtgcttacag	180
gaaactctta	gaaggcgaag	aagagagggt	gaagctgtct	ccaagccctt	cttcccgtgt	240
gacagtatcc	cgagcatcct	caagtcgtag	tgtaccgtac	aactagagga	aagcgggaaga	300
gggttgatgt	ggaagaatca	gaggcgaagt	agtagtggtta	gcattctctca	ttccgcctca	360
accactggaa	atgtttgcat	cgaagaaatt	gatgttgatg	ggaaatttat	cccgtttgaa	420
gaacacttct	gaacaggatc	aaccaatggg	aaggcttggg	agatgatcag	aaaaattgga	480
gacacatcag	tcagttataa	atatacctca	a			511

<210> 136
<211> 341
<212> DNA
<213> Homo sapien

<400> 136
catgggtttc accagggttg ccaggctgct cttgaactsc tgacctcagg tgateccacc 60
gcctcggcct cccaaagtgc tgggattaca ggcgtgagcc accacgcccg gcccccaaag 120
ctgtttcttt tgtcttttagc gtaaagctct cctgccatgc agtatctaca taactgacgt 180
gactgccagc aagctcagtc actccgtggg ctttttctct tccagttct tctctctctc 240
ttcaagttct gcctcagtg aagctgcagg tccccagtta agtgatcagg tgagggttct 300
ttgaacctgg ttctatcagt cgaattaatc cttcatgatg g 341

<210> 137
<211> 551
<212> DNA
<213> Homo sapien

<400> 137
gatgtgttg accctctgtg tcaaaaaaaaa cctcacaaaag aatccccctgc tcattacaga 60
agaagatgca tttaaaatat gggttatttt caacttttta tctgaggaca agtatccatt 120
aattattgtg tcagaagaga ttgaatacct gcttaagaag cttacagaag ctatgggagg 180
aggttggcag caagaacaat ttgaacatta taaaatcaac tttgatgaca gtaaaaatgg 240
cctttctgca tgggaactta ttgagcttat tggaaatgga cagtttagca aaggcatgga 300
ccggcagact gtgtctatgg caattaatga agtctttaat gaacttatat tagatgtgtt 360
aaagcagggt tacatgatga aaaagggcca cagacggaaa aactggactg aaagatgggt 420
tgtactaaaa cccaacataa tttcttacta tgtgagttag gatctgaagg ataagaaagg 480
agacattctc ttggatgaaa attgctgtgt agaagtcctt gcctgacaaa agatggaaag 540
aaatgccttt t 551

<210> 138
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 138
gactgggttct ttatttcaaa aagacacttg tcaatattca gtrtcaaaac agttgcacta 60
ttgatttctc tttctcccaa tcggcccaa agagaccaca taaaaggaga gtacatttta 120
agccaataag ctgcaggatg tacacctaac agacctcta gaaaccttac cagaaaatgg 180
ggactgggta gggaaggaaa cttaaaagat caacaaactg ccagcccacg gactgcagag 240
gctgtcacag ccagatgggg tggccagggt gccacaaacc caaagcaaag tttcaaaata 300
atataaaatt taaaaagttt tgtacataag ctattcaaga tttctccagc actgactgat 360
acaaagcaca attgagatgg cacttctaga gacagcagct tcaaaccag aaaagggatga 420
tgagatgaag tttcacatgg ctaaatacgt ggcaaaaaca cagtcttctt tctttctttc 480
tttcaaggan gcaggaaaagc aattaagtgg tcaccttaac ataaggggga c 531

<210> 139
<211> 521
<212> DNA
<213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(521)
 <223> n = A,T,C or G

<400> 139
 tgggtgggca ccatggctgg gatcaccacc atcgaggcgg tgaagcgcaa gatccaggtt 60
 ctgcagcagc aggcagatga tgcagaggag cgagctgagc gcctccagcg agaagttgag 120
 ggagaaaggc gggcccggga acaggctgag gctgagggtg cctccttgaa ccgtaggata 180
 cagctggttg aagaagagct ggaccgtgct caggagcgcc tggccactgc cctgcaaaaag 240
 ctggaagaag ctgaaaaaagc tgctgatgag agtgagagag gtatgaaggt tattgaaaac 300
 cgggccttaa aagatgaaga aaagatggaa ctccaggaaa tccaactcaa agaagctaag 360
 cacattgcag aagaggcaga taggaagtat gaagaggttg ctcgtaagtgt ggtgatcatt 420
 gaaggagact tggaaaccgca cagaaggaac gagcttgagc ttggcaaaaag tcccgttgcc 480
 cagagatggg atgaaccaga ttagactgat ggaccanaac c 521

<210> 140
 <211> 571
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(571)
 <223> n = A,T,C or G

<400> 140
 aggggcnegc ggtgcgtggg ccaactgggtg accgacttag cctggccaga ctctcagcac 60
 ctggaagcgc cccgagagtg acagcgtgag gctgggaggg aggacttggc ttgagcttgt 120
 taaactctgc tctgagcctc cttgtcgctt gcatttagat ggctcccgca aagaagggtg 180
 gcgagaagaa aaagggccgt tctgccatca acgaagtggg aaccggagaa tacaccatca 240
 acattcacaa gcgcattccat ggagtgggct tcaagaagcg tgcacctcgg gcaactcaag 300
 agattcggaa atttgccatg aaggagatgg gaactccaga tgtgcgcatt gacaccaggc 360
 tcaacaaagc tgtctggggc aaaggaataa ggaatgtgcc ataccgaatc cgggtgtgcgg 420
 ctgtccagaa aacgtaatga ggatgaagat tcaccaaata agctatatac tttggttacc 480
 tatgtacctg ttaccacttt caaaaatcta cagacagtca atgtggatga gaactaatcg 540
 ctgatcgtca gatcaaataa agttataaaa t 571

<210> 141
 <211> 531
 <212> DNA
 <213> Homo sapien

<400> 141
 tcgggagcca cacttgcccc tcttctcttc caaagsgcca gaacctcctt ctctttggag 60
 aatggggagg cctcttggag acacagaggg ttacaccttg gatgacctct agagaaattg 120
 cccaagaagc ccaccttctg gtcccaacct gcagacccca cagcagtcag ttgggtcaggc 180
 cctgctgtag aaggtcactt ggctccattg cctgcttcca accaatgggc aggagagaag 240
 gcctttatatt ctgcgccacc cattcctcct gtaccagcac ctccgttttc agtcagtgtt 300
 gtccagcaac ggtaccgttt acacagtcac ctgagacaca ccatttcacc tcccttgcca 360
 agctgttagc cttagagtga ttgcagtga cactgtttac acaccgtgaa tccattccca 420
 tcagtccatt ccagttggca ccagcctgaa ccatttggtta cctgggtgta actggagtcc 480
 tgtttacaag gtggagtcgg ggcttgctga cttctcttca tttgaggga c 531

<210> 142
 <211> 491
 <212> DNA
 <213> Homo sapien

 <220>
 <221> misc_feature
 <222> (1)...(491)
 <223> n = A,T,C or G

<400> 142
 acctagacag aagggtgggtg agggaggact ggtaggaggc tgaggcaatt ccttggtagt 60
 ttgtcctgaa accctactgg agaagtcagc atgaggcacc tactgagaga agtgcccaga 120
 aactgctgac tgcattctgtt aagagttaac agtaaagagg tagaagtgtg tttctgaatc 180
 agagtggaag cgtctcaagg gtcccacagt ggagggtccct gagctacctc ccttccgtga 240
 gtgggaagag tgaagcccat gaagaactga gatgaagcaa ggatgggggtt cctggggtcc 300
 aggcaagggc tgtgctctct gcagcaggga gcccacagag tcagaagaaa agaactaatc 360
 atttgttgca agaaaccttg cccggatact agcggaaaac tggaggcggn ggtgggggca 420
 caggaaagtg gaagtgattt gatggagagc agagaagcct atgcacagtg gccgagtcca 480
 cttgtaaagt g 491

<210> 143
 <211> 515
 <212> DNA
 <213> Homo sapien

<400> 143
 ttcaagcaat tgtaacaagt atatgtagat tagagtgagc aaaatcatat acaattttca 60
 tttccagttg ctattttcca aattgttctg taatgtcggt aaaattactt aaaaattaac 120
 aaagccaaaa attatattta tgacaagaaa gccatcccta cattaatctt acttttccac 180
 tcaccggccc atctccttcc tctttttcct aactatgcca ttaaaaactgt tctactgggc 240
 cgggcgtgtg gctcatgcct gtaatccag cattttgga ggccaaggca ggcggtcat 300
 gaggtcaaga gattgagacc atcctggcca acatggtgaa accccgcctc gactaagaat 360
 acaaaaatta gctgggcatg gtggcgcatg cctgtagtct cagctactcg ggaggctgag 420
 gcagaagaat cgcttgaacc cgggaggcag aggatgcagt gagccccgat cgcgccactg 480
 cactctagcc tgggcgacag actgagactc tgctc 515

<210> 144
 <211> 340
 <212> DNA
 <213> Homo sapien

<400> 144
 tgtgccagtc tacaggccta tcagcagcga ctcccttcagc aacagatggg gtcccctgtt 60
 cagcccaacc ccatgagccc ccagcagcat atgtctccaa atcaggccca gtcccacac 120
 ctacaaggcc agcagatccc taattctctc tccaatcaag tgcgtctctc ccagcctgtc 180
 ccttctccac ggccacagtc ccagcccccc cactccagtc cttccccaag gatgcagcct 240
 cagccttctc cacaccacgt ttccccacag acaagttccc cacatcctgg actggtagt 300
 gcccaggcca accccatgga acaaggcat tttgccagcc 340

<210> 145
 <211> 630
 <212> DNA
 <213> Homo sapien

<400> 145

tgtaaaaaact	tgttttttaat	tttgtataaa	ataaagggtgg	tccatgcccc	cgggggctgt	60
aggaaatcca	agcagaccag	ctgggggtggg	gggatgtagc	ctacctcggg	ggactgtctg	120
tcctcaaaac	gggctgagaa	ggcccgtcag	gggcccagg	cccacagaga	ggcctgggat	180
actccccaa	cccagggggc	agactgggca	gtggggagcc	cccacgtgc	cccagagggtg	240
gccacaggct	gaaggagggg	cctgaggcac	cgcagcctgc	aacccccagg	gctgcagtcc	300
actaactttt	tacagaataa	aaggaacatg	gggatgggga	aaaaagcacc	aggtcaggca	360
gggcccagag	gccccagatc	ccaggagggc	caggactcag	gatgccagca	ccaccctagc	420
agctcccaca	gctcctggca	caggagggcg	ccacggattg	gcacaggccg	ctgctggcca	480
tcacgccaca	tttgagaaac	ttgtcccgc	agaggtcagc	tcggaggagc	tcctcgtggg	540
cacacactgt	acgaacacag	atctccttgt	taatgacgta	cacacggcgg	aggctgcggg	600
gacagggcac	gggaggtctc	agccccactt				630

<210> 146

<211> 521

<212> DNA

<213> Homo sapien

<400> 146

atggctgctg	gatttaggtg	gtaatagggg	ctgtgggcca	taaatctgaa	gccttgagaa	60
ccttgggtct	ggagagccat	gaagagggaa	ggaaaagagg	gcaagtcttg	aacctaacca	120
atgacctgat	ggattgctcg	accaagacac	agaagtgaag	tctgtgtctg	tgcacttccc	180
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agaaatctga	ttgttgtgtg	tattcaatgt	gtgattttta	aaataaacag	caacaacaat	300
aaaaaccctg	actggctgtt	ttttccctgt	attcttttaca	actatttttt	gaccctctga	360
aaattattat	acttcaccta	aatggaagac	tgtgtgtgtt	gtggaaattt	tgtaatTTTT	420
taatttattt	tattctctct	cctttttatt	ttgcctgcag	aatccgttga	gagactaata	480
aggcttaata	tttaattgat	ttgtttaata	tgtatataaa	t		521

<210> 147

<211> 562

<212> DNA

<213> Homo sapien

<400> 147

ggcatgcgag	cgcactcggc	ggacgcaagg	gcggcgggga	gcacacggag	cactgcaggc	60
gccgggttgg	gacagcgtct	tcgctgctgc	tggatagtcg	tgttttcggg	gatcgaggat	120
actaccaga	aaccgaaaat	gccgaaacca	atcaatgtcc	gagttaccac	catggatgca	180
gagctggagt	ttgcaatcca	gccaaatata	actggaaaac	agctttttga	tcagggtggta	240
aagactatcg	gcctccggga	agtgtggtac	tttggcctcc	actatgtgga	taataaagga	300
tttctacct	ggctgaagct	ggataagaag	gtgtctgccc	aggaggtcag	gaaggagaat	360
cccctccagt	tcaagttccg	ggccaaagtt	ctaccctgaa	gatgtggctg	aggagctcat	420
ccaggacatc	accagaaaac	ttttcttctt	tcaagtgaag	gaaggaaatcc	ttagcgatga	480
gatctactgc	cccccttgat	actgccgtgc	tcttggggtc	ctacgcttgt	gcatgccaa	540
tttggggact	accaccaaga	ag				562

<210> 148

<211> 820

<212> DNA

<213> Homo sapien

<400> 148

gaaggagtgc	ggatactcag	cattgatgca	ccccaatctc	aaagcggcat	tcttcggcag	60
gtctctggga	caatctctag	ggctactacc	tggaaactcg	ttaggggtaca	actgaatgct	120
gaaaggaaa	aacacctgca	gaaccggaca	gaaattcacc	ccggcgatca	gctgattgat	180

ctcgggtcgac	cagaagtcac	ggctaaagat	gacgaggacg	ttgtcaattc	cctgggcttt	240
tcgaagttag	tccagcagca	gtctgaggta	ttcgggccc	ttatgcacct	ggaccaccag	300
caccagctcc	cggggggccc	aggtgccagc	cttatctaca	ttcctcaggg	tctgatcaaa	360
gttcagctgg	tacaccaggg	accgggtacc	cagcgtcagg	ttgtccgctc	gggctggggg	420
accgccggga	ccagggaagc	cgcgcgacag	ttggagaccc	tgcggatgcc	cacagccaca	480
gaggggtggg	ccccaccgcg	gccgcgggca	ccccgcgcgg	gttcggcgctc	cagcaacggt	540
ggggcgaggg	cctcgttctt	cctttgtcgc	ccattgctgc	tccagaggac	gaagcccgag	600
gcggccacca	cgagcgtcag	gattagcacc	ttccgtttgt	agatgcggaa	cctcatgggtc	660
tccagggccg	ggagcgcagc	tacagctcga	gcgtcggcgc	cgcgcgtagg	agccgcgggt	720
cggcttcgtc	tccgtcctct	ccattcagca	ccacgggtcc	cggaaaaaagc	tcagccscgg	780
tcccaaccgc	accctagctt	cgttacctgc	gcctcgcttg			820

<210> 149

<211> 501

<212> DNA

<213> Homo sapien

<400> 149

cagattttta	tttgtagctg	tcactggggc	cgtttcttgc	tgcttatttg	tctgctagcc	60
tgctcttcca	gctgcatggc	caggcgcaag	gccttgatga	catctcgag	ggctgagaaa	120
tgcttggtt	gctgggcccag	agcagattcc	gctttgttca	caaaggtctc	caggtcatag	180
tctggtctgt	cggatcatctc	agagagctca	agccagctctg	gtccttgctg	tatgatctcc	240
ttgagctctt	ccatagcctt	ctcctccagc	tccctgatct	gagtcagggc	ttcgttaaag	300
ctggacatct	gggaagacag	ttcctcctct	tccttgata	aattgcctgg	aatcagcgcc	360
ccgttagagc	aggcttccat	ctcttctgtt	tccatttgaa	tcaactgctc	tccactgggc	420
ccactgtggg	ggctcagctc	cttgacctg	ctgcatatct	taagggtgtt	taaaggatat	480
tcacaggagc	ttatgcctgg	t				501

<210> 150

<211> 511

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(511)

<223> n = A,T,C or G

<400> 150

ctcctcttgg	tacatgaacc	caagttgaaa	gtggacttaa	caaagtatct	ggagaaccaa	60
gcattctgct	ttgactttgc	atttgatgaa	acagcttcga	atgaagttgt	ctacaggttc	120
acagcaaggc	cactggtaca	gacaatcttt	gaaggtggaa	aagcaacttg	ttttgcatat	180
ggccagacag	gaagtggcaa	gacacatact	atgggcggag	acctctctgg	gaaagcccag	240
aatgcatcca	aagggtatcta	tgccatggcc	ttcggggacg	tcttcttctg	aagaatcaac	300
cctgctaccg	gaagttgggc	ctggaagtct	atgtgacatt	cttcgagatc	tacaatggga	360
agctgtttga	cctgctcaac	aagaaggcca	agcttgccgc	tgctggaaga	cggcaagcaa	420
caggtgcaag	tggtgggggc	ttgcaggaac	atctggntaa	ctctgcttga	tgatggcant	480
caagatgatc	gacatgggca	gcgcctgcag	a			511

<210> 151

<211> 566

<212> DNA

<213> Homo sapien

<400> 151

tcccgaattc	aagcgacaaa	ttggawagt	aaatggaaga	tgcctatcat	gaacatcagg	60
caaatctttt	gcgccaagat	ctgatgagac	gacaggaaga	attaagacgc	atggaagaac	120
ttcacaatca	agaaatgcag	aaacgtaaag	aaatgcaatt	gaggcaagag	gaggaacgac	180
gtagaagaga	ggaagagatg	atgattcgtc	aacgtgagat	ggaagaacaa	atgaggcgcc	240
aaagagagga	aagttacagc	cgaatgggct	acatggatcc	acgggaaaga	gacatgcgaa	300
tgggtggcgg	aggagcaatg	aacatgggag	atccctatgg	ttcaggaggc	cagaaatttc	360
cacctctagg	aggtgggtgg	ggcataggtt	atgaagctaa	tcctggcggt	ccaccagcaa	420
ccatgagtgg	ttccatgatg	ggaagtgaca	tgcgtactga	gcgctttggg	cagggagggtg	480
cggggcctgt	gggtggacag	ggtcctagag	gaatggggcc	tggaactcca	gcaggatatg	540
gtagagggag	agaagagtac	gaaggc				566

<210> 152

<211> 518

<212> DNA

<213> Homo sapien

<400> 152

ttcgtgaaga	ccctgactgg	taagaccatc	actctogaag	tggagcccga	gtgacaccat	60
tgagaatgtc	aaggcaaaga	tccaagacaa	ggaaggcatc	cctcctgacc	agcakagggtt	120
gatctttgct	gggaaacagc	tggaaagatg	acgcaccctg	tctgactaca	acatccagaa	180
agagtcacc	ctgcacctgg	tgtcccgctc	cagaggtggg	atgcaaactc	tcgtgaagac	240
cctgactggg	aagaccatca	ccctcgagggt	ggagcccagt	gacaccatcg	agaatgtcaa	300
ggcaaagatc	caagataagg	aaggcatccc	tcctgatcag	cagaggttga	tctttgctgg	360
gaaacagctg	gaagatggac	gcacctgtc	tgactacaac	atccagaaaag	agtccactct	420
gcacttggtc	ctgcgcttga	gggggggtgt	ctaagtttcc	ccttttaagg	tttcaacaaa	480
tttcattgca	ctttcctttc	aataaagttg	ttgcattc			518

<210> 153

<211> 542

<212> DNA

<213> Homo sapien

<400> 153

gcgcgggtgc	gtgggccact	gggtgaccga	cttagcctgg	ccagactctc	agcacctgga	60
agcgccccga	gagtgacagc	gtgaggctgg	gagggaggac	ttggcttgag	cttgtaaacc	120
tctgctctga	gcctccttgt	cgccctgcatt	tagatggctc	ccgcaaagaa	gggtggcgag	180
aagaaaaagg	gccgttctgc	catcaacgaa	gtggttaacc	gagaatacac	catcaacatt	240
cacaagcgca	tccatggagt	gggcttcaag	aagcgtgcac	ctcgggcact	caaagagatt	300
cggaaatttg	ccatgaagga	gatgggaact	ccagatgtgc	gcattgacac	caggctcaac	360
aaagctgtct	gggcccagg	aataaggaat	gtgccatacc	gaatccgtgt	gcggctgtcc	420
agaaaacgta	atgaggatga	agattcacca	aataagctat	atactttggt	tacctatgta	480
cctgttacca	ctttcaaaaa	tctacagaca	gtcaatgtgg	atgagaacta	atcgctgac	540
gt						542

<210> 154

<211> 411

<212> DNA

<213> Homo sapien

<400> 154

aattctttat	ttaaataaac	aaactcatct	tcctcaagcc	ccagaccatg	gtaggcagcc	60
ctccctctcc	atcccttcac	cccacccctt	agccacagtg	aagggaatgg	aaaatgagaa	120
gccacgaggg	cccctgccag	ggaaggctgc	cccagatgtg	tggtgagcac	agtcagtga	180
gctgtggctg	gggcagcagc	tgccacaggc	tcctccctat	aaattaagtt	cctgcagcca	240
cagctgtggg	agaagcatat	ttgtagaagc	aaggccagtc	cagcatcaga	aggcagaggg	300

agcatcagtg actcccagcc atggaatgaa cggaggacac agagctcaga gacagaacag 360
gccaggggga agaaggagag acagaatagg ccaggggcatg gcggtgaggg a 411

<210> 155
<211> 421
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(421)
<223> n = A,T,C or G

<400> 155
tgatgaatct ggggtgggctg gcagtagccc gagatgatgg gctcttctct ggggatccca 60
actggttccc taagaaatcc aaggagaatc ctcggaactt ctcgataac cagctgcaag 120
agggcaagaa cgtgatcggg ttacagatgg gcaccaaccg cggggcgtct cangcaggca 180
tgactggcta cgggatgcca cgccagatcc tctgatccca cccaggcct tgcccctgcc 240
ctcccacgaa tggttaatat atatgtagat atatatttta gcagtgcacat tcccagagag 300
ccccagagct ctcaagctcc tttctgtcag ggtggggggt tcaagcctgt cctgtcacct 360
ctgaagtgcc tgctggcatc ctctccccc tgcttactaa tacattccct tccccatagc 420
c 421

<210> 156
<211> 670
<212> DNA
<213> Homo sapien

<400> 156
agcggagctc cctcccctgg tggctacaac ccacacacgc caggctcagg catcgagcag 60
aactccagcg actgggtaac cactgacatt cagggtgaagg tgcgggacac ctacctggat 120
acacaggtgg tgggacagac aggtgtcatc cgcagtgtca cggggggcat gtgctctgtg 180
tacctgaagg acagtgagaa ggttgtcagc atttccagtg agcacctgga gcctatcacc 240
cccaccaaga acaacaaggt gaaagtgatc ctgggcgagg atcgggaagc cacgggcgtc 300
ctactgagca ttgatgggta ggatggcatt gtccgtatgg accttgatga gcagctcaag 360
atcctcaacc tccgcttcct ggggaagctc ctggaagcct gaagcaggca gggccggtgg 420
acttcgtcgg atgaagagtg atcctccttc cttccctggc ccttggctgt gacacaagat 480
cctcctgcag ggctaggcgg attgtttctgg atttcccttt gtttttcctt ttaggtttcc 540
atcttttccc tccttgggtc tcattggaat ctgagtagag tctgggggag ggtccccacc 600
ttcctgtacc tcctccccac agcttgcttt tgttgtagcg tctttcaata aaaagaagct 660
gtttggtcta 670

<210> 157
<211> 421
<212> DNA
<213> Homo sapien

<400> 157
ggttcacagc actgctgctt gtgtgttgcc ggccaggaat tccaggctca caaggctatc 60
ttagcagctc gttctccggt ttttagtgcc atgtttgaac atgaaatgga ggagagcaaa 120
aagaatcgag ttgaaatcaa tgatgtggag cctgaagttt ttaaggaaat gatgtgcttc 180
atttacacgg ggaaggctcc aaacctcgac aaaatggctg atgatttgct ggcagctgct 240
gacaagtatg ccttgagcgg cttaaaggctc atgtgtgagg atgccctctg cagtaacctg 300
tccgtggaga acgctgcaga aattctcatc ctggccgacc tccacagtgc agatcagttg 360
aaaaactcagg cagtggattt catcaactat catgcttcgg atgtcttggg gacctcttgg 420

g

421

<210> 158
<211> 321
<212> DNA
<213> Homo sapien

<400> 158
tcgtagccat ttttctgctt ctttggagaa tgacgccaca ctgactgctc attgtcggtg 60
gttccatgcc aattggtgaa atagaacctc atccggtagt ggagccggag ggacatcttg 120
tcatcaacgg tgatggtgcg atttggagca taccagagct tgggtgtctc gccatacagg 180
gcaaagaggt tgtgacaaaag aggagagata cggcatgcct gtgcagccct gatgcacagt 240
tcctctgctg tgtactctcc actgcccagc cggaggggct ccctgtccga cagatagaag 300
atcacttcca cccctggctt g 321

<210> 159
<211> 596
<212> DNA
<213> Homo sapien

<400> 159
tggcacactg ctcttaagaa actatgawga tctgagattt ttttgtgtat gtttttgact 60
cttttgagtg gtaatcatat gtgtctttat agatgtacat acctccttg acaaattggag 120
gggaattcat tttcatcact gggagtgtcc ttagtgtata aaaaccatgc tggatatatgg 180
cttcaagttg taaaaatgaa agtgacttta aaagaaaata ggggatggtc caggatctcc 240
actgataaga ctgtttttta gtaacttaag gacctttggg tctacaagta tatgtgaaaa 300
aaatgagact tactgggtga ggaaattcat tgtttaaaga tggtcgtgtg tgtgtgtgtg 360
tgtgtgtgtg tgtgtgtgtg ttttgttttt taagggaggg aatttattat ttaccgttgc 420
ttgaaattac tgkgtaaaata tatgtytgat aatgatattgc tytttgvcma ctaaaattag 480
gvctgtataa gtwctaratg cmtccctggg kgttgatytt ccmagatatt gatgatamcc 540
cttaaaattg taaccygcct ttttcccttt gctytcatt aaagtctatt cmaaag 596

<210> 160
<211> 515
<212> DNA
<213> Homo sapien

<400> 160
gggggtaggc tctttattag acggttattg ctgtactaca gggtcagagt gcagtgtgaa 60
cagtgtcaga ggccgcggtt cagcccaaga atgtggattt tctctcccta ttgatcacag 120
tgggtgggtt tcttcagaaa agccccagag gcagggacca gtgagctcca aggttagaag 180
tggaactgga aggccttcagt cacatgctgc ttccacgctt ccaggctggg cagcaaggag 240
gagatgccca tgacgtgccca ggtctcccca tctgacacca gtgaagtctg gtaggacagc 300
agccgcacgc ctgcctctgc caggaggcca atcatggtag gcagcattgc agggtcagag 360
gtctgagtcc ggaataggag caggggagcag tccttgcgga gaggcacttc tggcctgaag 420
acagctccat tgagcccctg cagtacaggy gtagtgctt ggaccaagcc cacagcctgg 480
taaggggcgc ctgccagggc cacggccagg aggca 515

<210> 161
<211> 936
<212> DNA
<213> Homo sapien

<400> 161
taatttctta gtcgtttgga atccttaagc atgcaaaagc tttgaacaga agggttcaca 60

aaggaaccag	ggttgtctta	tggcatccag	ttaagccaga	gctgggaatg	cctctgggtc	120
atccacatca	ggagcagaag	cacttgactt	gtcggtcctg	ctgccacggt	ttgggcgccc	180
accacgccc	cgtccacctc	gtcctccctt	gcccacacgt	cctgggcggc	caaggtctcc	240
aaaattgatc	tccagctgag	acgttatatc	atttgcctgg	ttccggaaat	gatgggtccat	300
aaccgaatct	tcagcatgag	cctcttcaact	ctttgattta	tgaagaacaa	atcccttctt	360
ccactgccca	tcagcacctt	catttggttt	tcggatatta	aattctactt	ttgcccgggtc	420
cttattttga	atagccttcc	actcatccaa	agtcactctt	tttggaacct	cctctttttac	480
ctcttcaact	tcatttctct	tattttcagt	gtctgccact	ggatgatgtt	cttcaccttc	540
aggtgtttcc	tcagtcacat	ttgattgatc	caagtcagtt	aattcgtctt	tgacagttcc	600
ccagttgtga	gatccgctac	ctccacgttt	gtcctcgtgc	ttcaggccag	atctatcact	660
tccactatgc	ctatcaaatt	cacgtttgcc	acgagaatca	aatccatctc	ctcggcccat	720
tccacgtcca	cggccccctc	gacctcttcc	aagaccacca	cgacctcgaa	taggtcggtc	780
aataatcggg	ctatcaactg	aaaattcgcc	tccttcaccc	ttttcttcaa	gtggcttttc	840
gaatcttcgt	tcacgaggtg	gtcgccttcc	tggtcttcta	tcaattattt	tcccttcacc	900
ctgaagttgt	tgatcaggtc	ttcttccaac	tcgtgc			936

<210> 162

<211> 950

<212> DNA

<213> Homo sapien

<400> 162

aagcggatgg	acctgagtca	gccgaatcct	agcccccttc	cttgggcctg	ctgtggtgct	60
cgacatcagt	gacagacgga	agcagcagac	catcaaggct	acgggaggcc	cggggcgctt	120
gcgaagatga	agtttggtg	cctctccttc	cggcagcctt	atgctggctt	tgtcttaaat	180
ggaatcaaga	ctgtggagac	gcgctggcgt	cctctgctga	gcagccagcg	gaactgtacc	240
atcgccgtcc	acattgctca	cagggactgg	gaaggcgatg	cctgtcggga	gctgctgggtg	300
gagagactcg	ggatgactcc	tgctcagatt	caggccttgc	tcaggaaagg	ggaaaagtgt	360
ggtcgaggag	tgatagcggg	actcgttgac	attggggaaa	ctttgcaatg	ccccgaagac	420
ttaactcccc	atgaggttgt	ggaactagaa	aatcaagctg	cactgaccaa	cctgaagcag	480
aagtacctga	ctgtgatttc	aaaccccgag	tggttactgg	agcccatacc	taggaaagga	540
ggcaaggatg	tattccaggt	agacatccca	gagcacctga	tccctttggg	gcatgaagtg	600
tgacaagtgt	gggctcctga	aaggaatgtt	ccrgagaaac	cagctaaatc	atggcacctt	660
caatttgcca	tcgtgacgca	gacctgtata	aattaggtta	aagatgaatt	tccactgctt	720
tggagagtcc	caccactaa	gcactgtgca	tgtaaacagg	ttcctttgct	cagatgaagg	780
aagtaggggg	tggggctttc	cttgtgtgat	gcctccttag	gcacacaggc	aatgtctcaa	840
gtactttgac	cttagggtag	aaggcaaagc	tgccagtaaa	tgtctcagca	ttgctgctaa	900
ttttggctct	gctagtttct	ggattgtaca	aataaatgtg	ttgtagatga		950

<210> 163

<211> 475

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(475)

<223> n = A,T,C or G

<400> 163

tcgagcggcc	gcccgggcag	gtgtcggagt	ccagcacggg	aggcgtgggc	ttgtagttgt	60
tctccggctg	cccattgctc	tccactcca	cggcgatgtc	gctgggatag	aagcctttga	120
ccaggcaggt	caggctgacc	tggttcttgg	tcactctctc	ccgggatggg	ggcagggtgt	180
acacctgtgg	ttctcggggc	tgccctttgg	ctttggagat	ggttttctcg	atgggggctg	240
ggagggcttt	gttgagagacc	ttgcacttgt	actccttgcc	attcaaccag	tccctgggtgca	300

ngacggtgag	gacgctnacc	acacgggtacg	ngetggtgta	ctgctcctcc	cgcggttttg	360
tcttggcatt	atgcacctcc	acgccgtcca	cgtaccaatt	gaacttgacc	tcagggtctt	420
cgtggctcac	gtccaccacc	acgcatgtaa	cctcaaanct	cggnccgan	cacgc	475

<210> 164
 <211> 476
 <212> DNA
 <213> Homo sapien

<400> 164						
agcgtggtcg	cggccgaggt	ctgaggttac	atgcgtggtg	gtggacgtga	gccacgaaga	60
ccctgaggtc	aagttcaact	ggtacgtgga	cgccgtggag	gtgcataatg	ccaagacaaa	120
gccgcgggag	gagcagtaca	acagcaogta	ccgtgtggtc	agcgtcctca	ccgtcctgca	180
ccaggactgg	ctgaatggca	aggagtacaa	gtgcaaggtc	tccaacaaag	ccctcccagc	240
ccccatcgag	aaaaccatct	ccaaagccaa	agggcgaccc	cgagaaccac	aggtgtacac	300
cctgccccca	tcccgggagg	agatgaccaa	gaaccaggtc	agcctgacct	gcctggtcaa	360
aggcttctat	cccagcgaca	tcgcccgtgg	agtgggagag	caatgggcag	ccggagaaca	420
actacaagac	cacgcctccc	gtgctggact	ccgacacctg	ccgggcggcc	gctcga	476

<210> 165
 <211> 256
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(256)
 <223> n = A,T,C or G

<400> 165						
agcgtggttn	cggccgaggt	cccaaccaag	gctgcancct	ggatgccatc	aaagtcttct	60
gcaacatgga	gactggtgag	acctgcgtgt	acccactca	gccagtgtg	gccagaaga	120
actggtacat	cagcaagaac	cccaaggaca	agaggcatgt	ctggttcggc	gagagcatga	180
ccgatggatt	ccagtccgag	tatggcgggc	agggctccga	ccctgccgat	gtggacctgc	240
ccgggcggnc	gctcga					256

<210> 166
 <211> 332
 <212> DNA
 <213> Homo sapien

<400> 166						
agcgtggtcg	cggccgaggt	caagaacccc	gcccgcacct	gccgtgacct	caagatgtgc	60
cactctgact	ggaagagtgg	agagtactgg	attgacccca	accaaggctg	caacctggat	120
gccatcaaag	tcttctgcaa	catggagact	ggtgagacct	gcgtgtaccc	cactcagccc	180
agtgtggccc	agaagaactg	gtacatcagc	aagaacccca	aggacaagag	gcatgtctgg	240
ttcggcgaga	gcatgaccga	tggtattccag	ttcgagtatg	gcggccaggg	ctccgacct	300
gccgatgtgg	acctgcccgg	gcggccgctc	ga			332

<210> 167
 <211> 332
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(332)
 <223> n = A,T,C or G

<400> 167
 tcgagcggtc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg 60
 aactggaatc catcggnat gctctcgccg aaccagacat gcctcttgnc cttgggggttc 120
 ttgctgatgt accagntctt ctgggccaca ctgggctgag tggggtacac gcaggtctca 180
 ccantctcca tgttgcanaa gactttgatg gcatccaggt tgcagccttg gttgggggtca 240
 atccagtact ctccactctt ccagacagag tggcacatct tgaggtcacg gcaggtgcgg 300
 gcgggggttct tgacctcggt cgcgaccacg ct 332

<210> 168
 <211> 276
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(276)
 <223> n = A,T,C or G

<400> 168
 tcgagcggcc gcccgggcag gtccctctca gagcggtagc tgttcttatt gccccggcag 60
 cctccataga tnaagttatt gcangagttc ctctccacgt caaagtacca gcgtgggaag 120
 gatgcacggc aaggccaggt gactgcgttg gcggtgcagt attcttcata gttgaacata 180
 tcgctggagt ggacttcaga atcctgcctt ctgggagcac ttgggacaga ggaatccgct 240
 gcattcctgc tgggtggacct cggccgcgac cacgct 276

<210> 169
 <211> 276
 <212> DNA
 <213> Homo sapien

<400> 169
 agcgtggtcg cggccgaggt ccaccagcag gaatgcagcg gattcctctg tcccaagtgc 60
 tcccagaagg caggattctg aagaccactc cagcgatatg ttcaactatg aagaatactg 120
 caccgccaac gcagtcactg ggccttgccg tgcaccttc ccacgctggt actttgacgt 180
 ggagaggaac tcctgcaata acttcacta tggaggctgc cggggcaata agaacagcta 240
 ccgctctgag gaggacctgc ccgggcggcc gctcga 276

<210> 170
 <211> 332
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(332)
 <223> n = A,T,C or G

<400> 170
 tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg 60
 aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttgggggttc 120
 ttgctgatgt accagttctt ctgggccaca ctgggctgag tggggtacac gcaggtctca 180

ccagtctcca	tgttgacagaa	gactttgatg	gcattccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagccagaa	tggcacatct	tgagggtcacg	gcangtgcgg	300
gcgggggttct	tgacctcggc	cgcgaccacg	ct			332

<210> 171
 <211> 333
 <212> DNA
 <213> Homo sapien

<400> 171						
agcgtggtcg	cggccgaggt	caagaaaccc	cgcgcgcacc	tgccgtgacc	tcaagatgtg	60
ccactctggc	tggagagtg	gagagtactg	gattgacccc	aaccaaggct	gcaacctgga	120
tgccatcaaa	gtcttctgca	acatggagac	tgggtgagacc	tgcgtgtacc	ccactcagcc	180
cagtgtggcc	cagaagaact	ggtacatcag	caagaacccc	aaggacaaga	ggcatgtctg	240
gctcggcgag	agcatgaccg	atggattcca	gttcgagtat	ggcggccagg	gctccgaccc	300
tgccgatgtg	gacctgcccg	ggcggccgct	cga			333

<210> 172
 <211> 527
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(527)
 <223> n = A,T,C or G

<400> 172						
agcgtggtcg	cggccgaggt	cctgtcagag	tggcactggt	agaagntcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctgnaatgg	ggcccatgan	atggttgntc	gagagagagc	ttcttgtcct	acattcggcg	180
ggtatggtct	tggcctatgc	cttatggggg	tggccggtgn	ggcgggtgng	gtccgcctaa	240
aaccatgttc	ctcaaagatc	atgtgttgcc	caacactggg	ttgctgacca	naagtgccag	300
gaagctgaat	accattttcca	gtgtcatacc	cagggtgggt	gacgaaaggg	gtcttttgaa	360
ctgtggaagg	aacatccaag	atctctgntc	catgaagatt	ggggtgtgga	agggttacca	420
gttggggaag	ctcgtgtgtc	ttttccttcc	aatcangggc	tcgctcttct	gaatattctt	480
caggggcaatg	acataaattg	tatattcggt	tcccgggtcc	aggccag		527

<210> 173
 <211> 635
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(635)
 <223> n = A,T,C or G

<400> 173						
tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctggtatc	atggcagccg	60
ccagtgcca	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtc	ctcggccccg	ccctggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagcccttg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttcacac	ccccaatctt	300
catggaccag	agatcttgga	tgttccttcc	acagttcaaa	agaccctttt	cgtcacccac	360

cctgggtatg	acactggaaa	tggtattcag	cttcctggca	cttctgggtca	gcaacccagt	420
gttgggcaac	aaatgatctt	tgangaacat	ggnttttaggc	ggaccacacc	ggccacaacg	480
ggcaccacca	taaggcatag	gccaagaaca	taccgncga	atgtaggaca	agaagctctn	540
tctcanacaa	ncatctcatg	ggccccattc	cangacactt	ctgagtacat	canttcatgg	600
catcctggtg	gcactgataa	aaacccttac	agtta			635

<210> 174
 <211> 572
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(572)
 <223> n = A,T,C or G

<400> 174						
agcgtggtcg	cgggcgaggt	cctgtcagag	tggcactggt	agaagttcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctggaatgg	ggcccatgag	atggttgtct	gagagagagc	ttcttgtoct	acattcggcg	180
ggtatggtct	tgccctatgc	cttatggggg	tgcccgttgt	gggcggtgtg	gtccgcctaa	240
aaccatgttc	ctcaaagatc	atttggtgcc	caacactggg	ttgctgacca	gaagtgccag	300
gaagctgaat	accatttcca	gtgtcatacc	caggggtggg	gacgaaaggg	gtcttttgaa	360
ctgtggaagg	aacatccaag	atctctggtc	catgaagatt	ggggtgtgga	agggttacca	420
gttggggaag	ctcgtctgtc	tttttccttc	caatcanggg	ctcgtctctc	tgattattct	480
tcagggcaat	gacataaatt	gtatattcgg	ntcccgggtg	cagccaataa	taataaccct	540
ctgtgacacc	anggcggggc	cgaagganct	ct			572

<210> 175
 <211> 372
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(372)
 <223> n = A,T,C or G

<400> 175						
agcgtggtcg	cggccgaggt	cctcaccaga	ggtaccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taaggttcgg	gaagagggtg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	accctacac	agtttcccat	180
tatgccgttg	gagatgagtg	ggaacgaatg	tctgaatcag	gctttaaact	gttggtgccag	240
tgcttangct	ttggaagtgg	tcatttcaga	tgtgattcat	ctagatggtg	ccatgacaat	300
ggtgtgaact	acaagattgg	agagaagtgg	gaccgtcagg	gagaaaatgg	acctgcccgg	360
gcggccgctc	ga					372

<210> 176
 <211> 372
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(372)

<223> n = A,T,C or G

<400> 176

tcgagcggcc	gcccgggcag	gtccattttc	tccctgacgg	tcccacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcaccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaagcctaag	cactggcaca	acagtttaaa	gcctgattca	gacattcggt	cccactcatc	180
tccaacggca	taatgggaaa	ctgtgtaggg	gtcaaagcac	gagtcacccg	taggttggtt	240
caagccttcg	ntgacagagt	tgcccacggt	aacaacctct	tcccgaacct	tatgcctctg	300
ctgggtcttc	agtgcctcca	ctatgatggt	gtaggtggta	cctctggtga	ggacctcggc	360
cgcgaccacg	ct					372

<210> 177

<211> 269

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(269)

<223> n = A,T,C or G

<400> 177

agcgtggccg	cggccgaggt	ccattggctg	gaacggcatc	aacttggaag	ccagtgatcg	60
tctcagcctt	ggttctccag	ctaattggta	tgnggtctc	agtagcatct	gtcacacgag	120
cccttcttgg	tggtctgaca	ttctccagag	tggtgacaac	accctgagct	ggtctgcttg	180
tcaaagtgtc	cttaagagca	tagacactca	cttcatattt	ggcgnccacc	ataagtcctg	240
atacaaccac	ggaatgacct	gtcaggaac				269

<210> 178

<211> 529

<212> DNA

<213> Homo sapien

<400> 178

tcgagcggcc	gcccgggcag	gtcctcagac	cgggttctga	gtacacagtc	agtgtggttg	60
ccttgcaaga	tgatatggag	agccagcccc	tgattggaac	ccagtccaca	gctattcctg	120
caccaactga	cctgaagttc	actcaggtca	caccacaag	cctgagcgcc	cagtggacac	180
cacccaatgt	tcagctcact	ggatatcgag	tgcggtgac	ccccaaaggag	aagaccggac	240
caatgaaaga	aatcaacctt	gctcctgaca	gctcatccgt	ggttgatatca	ggacttatgg	300
cggccaccaa	atatgaagtg	agtgtctatg	ctcttaagga	cactttgaca	agcagaccag	360
ctcaggggtg	tgtcaccact	ctggagaatg	tcagcccacc	aagaagggtc	cgtgtgacag	420
atgctactga	gaccaccatc	accattagct	ggagaaccaa	gactgagacg	atcactggct	480
tccaagttga	tgccgttcca	gccaatggac	ctcggccgcg	accacgctt		529

<210> 179

<211> 454

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(454)

<223> n = A,T,C or G

<400> 179

```

agcgtgggtcg cggccgaggt ctggccgaac tgccagtgtgta caggggaagat gtacatgtta      60
tagntcttct cgaagtcccg ggccagcagc tccacgggggt ggtctcctgc ctccaggcgc      120
ttctcattct catggatctt cttcacccgc agcttctgct tctcagtcag aagggtgttg      180
tcctcatccc tctcatcacg ggtgaccagg acgttcttga gccagtcccg catgcgcagg      240
gggaattcgg tcagctcaga gtccaggcaa ggggggatgt atttgcaagg cccgatgtag      300
tccaagtgga gcttgtggcc cttcttggtg ccctccaagg tgcactttgt ggcaaagaag      360
tggcaggaag agtcgaaggt cttgttggtca ttgctgcaca ccttctcaaa ctgcgcaatg      420
ggggctgggc agacctgccc gggcgggccgc tcga                                454

```

<210> 180

<211> 454

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(454)

<223> n = A,T,C or G

<400> 180

```

tcgagcgggc gcccgggcag gtctgcccag cccccattgg cgagtttgag aaggngtgca      60
gcaatgacaa caagaccttc gactcttctt gccacttctt tgccacaaag tgcaccctgg      120
agggcaccaa gaagggccac aagctccacc tggactacat cgggccttgc aaatacatcc      180
ccccttgctt ggactctgag ctgaccgaat tccccctgcg catgcgggac tggctcaaga      240
acgtcctggt caccctgtat gagagggatg aggacaacaa ccttctgact gagaagcana      300
agctgcgggt gaagaanac catgagaatg anaagcgcct gnaggcanga gaccaccccg      360
tggagctgct ggcccgggac ttcgagaaga actataacat gtacatcttc cctgtacact      420
ggcagttcgg ccagacctcg gccgcgacca cgct                                454

```

<210> 181

<211> 102

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(102)

<223> n = A,T,C or G

<400> 181

```

agcgtggntg cggacgacgc ccacaaagcc attgtatgta gttttanttc agctgcaaan      60
aataccncca gcatccacct tactaaccag catatgcaga ca                                102

```

<210> 182

<211> 337

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(337)

<223> n = A,T,C or G

<400> 182

```

tcgagcggtc gcccgggcag gtctggggcg atagcaccgg gcatattttg gaatggatga      60

```

```

ggtctggcac cctgagcagc ccagcgagga cttggtctta gttgagcaat ttggctagga      120
ggatagtatg cagcacggtt ctgagtctgt gggatagctg ccatgaagna acctgaagga      180
ggcgctggct ggtanggggtt gattacaggg ctgggaacag ctcgtaact tggcattctc      240
tgcatatact ggntagttag gcgagcctgg cgctcttctt tgcgctgagc taaagctaca      300
tacaatggct ttgnggacct cggccgcgac cacgctt                                337

```

```

<210> 183
<211> 374
<212> DNA
<213> Homo sapien

```

```

<400> 183
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt      60
gtagttcaca ccattgtcat gacaccatct agatgaatca catctgaaat gaccacttcc      120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc      180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt      240
caagccttcg ttgacagaag ttgccacgg taacaacctc ttcccgaacc ttatgcctct      300
gctgggtcttt caagtgcctc cactatgatg ttgtaggtgg cacctctggt gaggacctcg      360
gccgcgacca cgct                                374

```

```

<210> 184
<211> 375
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(375)
<223> n = A,T,C or G

```

```

<400> 184
agcgtggttt gcggccgagg tccctaccan aggtgccacc tacaacatca tagtggaggg      60
actgaaagac cagcagaggc ataaggttcg ggaagagggt gttaccgtgg gcaactctgt      120
caacgaaggc ttgaaccaac ctacggatga ctcgctgctt gacccctaca cagnttccca      180
ttatgccgtt ggagatgagt gggaacgaat gtctgaatca ggctttaaac tgttggtgcca      240
gtgcttancg tttggaagtg gtcatttcag atgtgattca tctanatggt gtcattgacaa      300
tggtgngaac tacaagattg gagagaagtg gnaccgtcag ggganaaaat ggacctgccc      360
ggcgcgcneg ctgga                                375

```

```

<210> 185
<211> 148
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(148)
<223> n = A,T,C or G

```

```

<400> 185
agcgtggtcg cggccgaggt ctggcttncg gctcangtga ttatcctgaa ccatccaggc      60
caaataagcg ccggctatgc ccctgnattg gattgccaca cggctcacat tgcattgcaag      120
tttgctgagc tgaaggaaaa gattgatc                                148

```

```

<210> 186

```

<211> 397
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(397)
 <223> n = A,T,C or G

<400> 186

tcgagcggcc	gcccgggag	gtccaattga	aacaaacagt	tctgagaccg	ttcttccacc	60
actgattaag	agtgggngg	cgggtattag	ggataatatt	catttagcct	tctgagcttt	120
ctgggcagac	ttggtgacct	tgccagctcc	agcagccttc	tggtccactg	ctttgatgac	180
accacccgca	actgtctgtc	tcatatcacg	aacagcaaag	cgacccaaag	gtggatagtc	240
tgagaagctc	tcaacacaca	tgggcttgcc	aggaaccata	tcaacaatgg	gcagcatcac	300
cagacttcaa	gaatttaagg	gccatcttcc	agctttttac	cagaacggcg	atcaatcttt	360
tccttcagct	cagcaaactt	gcatgcaatg	tgagccg			397

<210> 187
 <211> 584
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(584)
 <223> n = A,T,C or G

<400> 187

tcgagcggcc	gcccgggag	gtccagaggg	ctgtgctgaa	gtttgctgct	gccactggag	60
ccactccaat	tgctggccgc	ttcactcctg	gaaccttcac	taaccagatc	caggcagcct	120
tccgggagcc	acggcttctt	gtggntactg	accccagggc	tgaccaccag	cctctcacgg	180
aggcatctta	tgtaaaccta	cctaccattg	cgctgtgtaa	cacagattct	cctctgcgct	240
atgtggacat	tgccatccca	tgcaacaaca	agggagctca	ctcagngggg	tttgatgtgg	300
tggtatgctg	ctcgggaagt	tctgcgcatg	cgtggcacca	tttcccgtga	acacccatgg	360
gangncatgc	ctgatctgga	cttctacaga	gaccttgaa	agattgaaaa	agaagaacag	420
gctgnttgct	ganaaaagcaa	gtgaccaagg	angaaatttc	angggtgaaa	nggactgctc	480
ccgctcctga	attcactgct	actcaacctg	angntgcaga	ctggtcttga	aggnngnacan	540
gggccctctg	ggcctattta	agcancttcg	gtcgcgaaca	cgnt		584

<210> 188
 <211> 579
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(579)
 <223> n = A,T,C or G

<400> 188

agcgtgngtc	gcggccgagg	tgctgaatag	gcacagaggg	cacctgtaca	ccttcagacc	60
agtctgcaac	ctcaggctga	gtagcagtga	actcaggagc	gggagcagtc	cattcacccct	120
gaaattcctc	cttggncact	gccttctcag	cagcagcctg	ctcttctttt	tcaatctctt	180
caggatctct	gtagaagtac	agatcaggca	tgacctccca	tgggtgttca	cgggaaatgg	240

```

tgccacgcat ggcgagaact tcccagagcca gcatccacca catcaaacc actgagttag 300
ctcccttggt gttgcatggg atgggcaatg tccacatagc gcagaggaga atctgtgtta 360
cacagcgcaa tggtaggttag gttaacataa gatgcctccg cgagaagctg gtggtcagcc 420
ctgggggtcaa gtaaccacaa gaagccgtgg ctcccgggaag gctgcctgga tctggttagt 480
gaaggntcca ggagtgaagc ggccaacaat tggagtggct tcagtggcaa gcagcaaact 540
tcagcacaag ccctctggac ctgcccggcg gccgctcga 579

```

<210> 189

<211> 374

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(374)

<223> n = A,T,C or G

<400> 189

```

tcgagcggcc gcccgggcag gtccattttc tccctgacgg ncccacttct ctccaatctt 60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc 120
aaagcctaag cactggcaca acagttttaa gcctgattca gacattcggt cccactcatc 180
tccaacggga taatgggaaa ctgtgtaggg gtcaaaagcac gagtcatccg taggttggtt 240
caagccttcg ttgacagagt tgcccacggg aacaacctcn tcccgaacc ttatgcctct 300
gctgggcttt cagngcctcc actatgatgn tgtagggggg cacctctggn gangacctcg 360
gccgcgacca cgct 374

```

<210> 190

<211> 373

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(373)

<223> n = A,T,C or G

<400> 190

```

agcgtggtcg cggccgaggt cctcaccaga ggtgccacct acaacatcat agtggaggca 60
ctgaaagacc agcagaggca taaggctcgg gaagagggtg ttaccgtggg caactctgtc 120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttg acccctacac agtttcccat 180
tatgccgttg gagatgagt ggaacgaatg tctgaatcag gctttaaact gttgtgccag 240
tgcttangct ttggaagtgg gtcatttcag atgtgattca tctagatggg gccatgacaa 300
tgngngaac tacaagattg gagagaagt gnnaccncag ggagaaaatg gacctgccc 360
ggcgccgct cga 373

```

<210> 191

<211> 354

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(354)

<223> n = A,T,C or G

<400> 191

```

agcgtgggtcg cggccgaggt ccacatcggc aggggtcggag ccctggccgc catactcgaa      60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgctct tgggggttctt      120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtagacgc aggtctcacc      180
agtctccatg ttgcagaaga ctttgatggc atccaggntg caaccttggt tgggggtcaat      240
ccagtaactct ccactcttcc agccagagtg gcacatcttg aggtcacggc aggtgcggnc      300
gggggntttt gcggctgccc tctggncttc ggntgtntctc natctgctgg ctca      354

```

<210> 192

<211> 587

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(587)

<223> n = A,T,C or G

<400> 192

```

tcgagcggcc gcccgggcag gtctcgcggt cgcactgggtg atgctgggtcc tgttggtccc      60
cccggccctc ctggacctcc tgccccccct ggctcctccca gcgctgggtt cgacttcagc      120
ttcttgcccc agccacctca agagaaggct cagcatgggtg gccgctacta ccgggctgat      180
gatgccaatg tggttcgtga ccgtgacctc gaggtggaca ccacctcaa gagcctgagc      240
cagcagatcg agaacatccg gagcccagag ggcagncgca agaaccgccg ccgcacctgc      300
cgtgacctca agatgtgcca ctctgactgg aagagtggag agtactggat tgaccccaac      360
caagctgcaa cctggatgcc atcaaagtct tctgcaacat ggagactggg gagacctgcg      420
tgtaccccac tcagcccagt gtggcccaaa agaactggta catcagcaag aaccccaagg      480
acaagaagca tgtctggttc ggcgagaaca tgaccgatgg attccagttc gagtatggcg      540
ggcagggctc cgacctgccc gatggggacc ttggccgcga acacgct      587

```

<210> 193

<211> 98

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(98)

<223> n = A,T,C or G

<400> 193

```

agcgtggng cggccgaggt ataaatatcc agnccatata ctccctccac acgctganag      60
atgaagctgt ncaaagatct cagggtggan aaaaccat      98

```

<210> 194

<211> 240

<212> DNA

<213> Homo sapien

<400> 194

```

tcgagcggcc gcccgggcag gtccttcaga cttggactgt gtcacactgc caggcttcca      60
gggctccaac ttgcagacgg cctgttggtg gacagtctct gtaatcgcca aagcaaccat      120
gggaagacctg ggggaaaaca ccattggttt atccacctg agatctttga acaacttcat      180
ctctcagcgt gcggagggag gctctggact ggatatttct acctcggccg cgaccacgct      240

```

<210> 195
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 195
 cgagcgggag accgggcagg tncagactcc aatccanana accatcaagc cagatgtcag 60
 aagctacacc atcacagggt tacaaccagg cactgactac aaganctacc tgcacacctt 120
 gaatgacaat gctcggagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc 180
 atccaacctg cgtttccttg ccaccacacc caattccttg ctggtatcat ggcagccgcc 240
 acgtgccagg attaccggtg catcatcnag tatganaagc ctgggcctcc tcccagagaa 300
 gnggtccctc ggccccgccc tgntgtccca naggntacta ttactgngcc ngcaaccggc 360
 aaccgatatc nattttgnca ttggccttca acaataatta 400

<210> 196
 <211> 494
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(494)
 <223> n = A,T,C or G

<400> 196
 agcgtgggtc gcggccgang tcctgtcaga gtggcactgg tagaagttcc aggaaccctg 60
 aactgtaagg gttcttcacg agngccaaca ggatgacatg aaatgatgta ctcagaagtg 120
 tcctggaatg gggcccatga gatggttggt tgagagagag cttcttgncc tgtcttttcc 180
 cttccaatca ggggctcgct cttctgatta ttcttcaggg caatgacata aattgtatat 240
 tcgggtcccg gntccaggcc agtaatatga ncctctgtga caccagggcg gngccgaggg 300
 accacttctc tgggaggaga cccaggcttc tcatacttga tgatgtaacc ggtaatcctg 360
 gcacgtggcg gctgccatga taccagcaag gaattggggg gtggtggcca ggaaacgcag 420
 gttggatggn gcatcaatgg cagtggaggc cgctcgatgac cacaggggga gtcgccagat 480
 tgtcattcaa ggtg 494

<210> 197
 <211> 118
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(118)
 <223> n = A,T,C or G

<400> 197
 agcgtggncg cggccgaggt gcagcgcggg ctgtgccacc ttctgtcttc tgcccaacga 60
 taaggagggt ncctgcccc aggagaacat taactntccc cagctcggcc tctgccgg 118

<210> 198

<211> 403
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(403)
 <223> n = A,T,C or G

<400> 198
 tcgagcggcc gcccgggcag gttttttttg ctgaaagtgg ntacttttatt ggntgggaaa 60
 gggagaagct gtggtcagcc caagagggaa tacagagncc cgaaaaaggg gagggcaggt 120
 gggctggaac cagacgcagg gccaggcaga aacttttctt cctcactgct cagcctggtg 180
 gtggctggag ctcanaaatt gggagtgaca caggacacct tcccacagcc attgcggcgg 240
 catttcatct ggccaggaca ctggctgtcc acctggcact ggtcccagaca gaagcccag 300
 ctggggaaag ttaatgttca cctgggggca ggaaccctcc ttatcattgn gcagagagca 360
 gaaggtggca cagcccgcgc tgcacctcgg ccgcgaccac gct 403

<210> 199
 <211> 167
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(167)
 <223> n = A,T,C or G

<400> 199
 tcgagcggcc gcccgggcag gtccaccata agtcctgata caaccacgga tgagctgtca 60
 ggagcaaggt tgatttcttt cattgggtccg gnetttctct tgggggncac ccgcactcga 120
 tatccagtga gctgaacatt ggggtggcgc cactgggcgc tcaggct 167

<210> 200
 <211> 252
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(252)
 <223> n = A,T,C or G

<400> 200
 tcgagcgggt cgccccggga ggtccaccac acccaattcc ttgctggtat catggcagcc 60
 gccacgtgcc aggattaccg gctacatcat caagtatgag aagcctgggt ctctcccag 120
 agaagcgggt cctcggcccc gccctgggtg cacagaggct actattactg gcctggaacc 180
 gggaaaccgaa tatacaattt atgtcattgn cctgaagaat aatcannaan agcgancccc 240
 tgattggaag ga 252

<210> 201
 <211> 91
 <212> DNA
 <213> Homo sapien

<400> 201

agcgtggtcg	cggccgaggt	tgtacaagct	tttttttttt	tttttttttt	tttttttttt	60
tttttttttt	tttttttttt	tttttttttt	t			91

<210> 202

<211> 368

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(368)

<223> n = A,T,C or G

<400> 202

tcgagcggnc	gcccgggcag	gtctgccaac	accaagattg	gccccgcgcg	catccacaca	60
gtccgtgtgc	ggggaggtaa	caagaaatac	cgtgccctga	ggttgacgt	ggggaatttc	120
tcctggggct	cagagtgttg	tactcgtaaa	acaaggatca	tcgatgttgt	ctacaatgca	180
tctaataacg	agctggttcg	taccaagacc	ctggtgaaga	attgcatcgt	gctcatcgac	240
agcacaccgt	accgacagtg	gtacgagtcc	cactatgcgc	tgcccctggg	ccgcaagaag	300
ggagccaagc	tgactcctga	ggaagaagag	attttaaaaca	aaaaacgac	taanaaaaaa	360
aaaacaat						368

<210> 203

<211> 340

<212> DNA

<213> Homo sapien

<400> 203

agcgtggtcg	cggccgaggt	gaaatggtat	tcagcttctc	ggcacttctg	gtcagcaacc	60
cagtgttggt	caacaaatga	tctttgagga	acatggtttt	aggcggacca	caccgcccac	120
aacggccacc	cccataaggc	ataggccaag	accatacccg	ccgaatgtag	gacaagaagc	180
tctctctcag	acaaccatct	catgggcccc	attccaggac	acttctgagt	acatcatttc	240
atgtcatcct	gttggcactg	atgaagaacc	cttacagttc	agggttctct	gaacttctac	300
cagtgccact	ctgacaggac	ctgcccgggc	ggcgcgtcga			340

<210> 204

<211> 341

<212> DNA

<213> Homo sapien

<400> 204

tcgagcggcc	gcccgggcag	gtcctgtcag	agtggcactg	gtagaagttc	caggaaccct	60
gaactgtaag	ggttcttcat	cagtgccaac	aggatgacat	gaaatgatgt	actcagaagt	120
gtcctggaat	ggggcccatg	agatggttgt	ctgagagaga	gcttcttggt	ctacattcgg	180
cgggtatggt	cttggcctat	gccttatggg	ggtggcgcgt	gtgggcgggt	tggtccgcct	240
aaaaccatgt	tcctcaaaga	tcatttggtg	cccaacactg	ggttgctgac	cagaagtgcc	300
aggaagctga	ataccatttc	acctcgcccg	cgaccacgct	a		341

<210> 205

<211> 770

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(770)
 <223> n = A,T,C or G

<400> 205

tgcagcggcc	gcccgggcag	gtctcccttc	ttgcggccca	ggggcagcgc	atagtgggac	60
tcgtaccact	gtcggtagcg	tgtgctgtcg	atgagcacga	tgcaattctt	caccagggtc	120
ttggtagcaa	ccagctcggt	attagatgca	ttgtagacaa	catcgatgat	ccttggttta	180
cgagtacaac	actctgagcc	ccaggagaaa	ttccccacgt	ccaacctcag	ggcacgggat	240
ttcttggttac	ctccccgcac	acggactgtg	tggatgcggc	gggggccaaag	ctgactcctg	300
aggaagaaga	gatttttaaac	aaaaaacgat	ctaaaaaaat	tcagaagaaa	tatgatgaaa	360
ggaaaaagaa	tgccaaaatc	agcagctctcc	tggaggagca	gttccagcag	ggcaagcttc	420
ttgcgtgcat	cgcttcaagg	ccgggacagt	gtgaccgagc	agatggctat	gtgctagagg	480
gcaaagaagt	ggagttctat	cttaagaaaa	tcagggccca	gaatgggtng	tcttcaacta	540
atccaaaggg	gagtttcaga	ccagtgcagt	cagcaaaaac	attgatactg	ntggccaaat	600
ttattggtgc	agggcttgca	cantangan	ggctgggtct	tggggcttgg	attggnacaa	660
gctttggcag	ccttttcttt	ggttttgcca	aaaacctttt	gntgaagang	anacctnggg	720
cggacccctt	aaccgattcc	acnccngng	gcgttctang	gncccncttg		770

<210> 206
 <211> 810
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(810)
 <223> n = A,T,C or G

<400> 206

agcgtgggtcg	cggccgaggt	ctgctgcttc	agcgaagggt	ttctggcata	accaatgata	60
aggctgccaa	agactgttcc	aataccagca	ccagaaccag	ccactcctac	tgttgacagca	120
cctgcaccaa	taaatttggt	agcagtatca	atgtctctgc	tgattgcaact	ggtctgaaac	180
tcccttttga	ttagctgaga	cacaccattc	tgggccctga	ttttcctaag	atagaactcc	240
aactctttgc	cctctagcac	atagccatct	gtcgcgtcac	actgtcccgg	ccttgaagcg	300
atgcacgcaa	gaagcttgcc	ctgctggaac	tgtcctccca	ggagactgct	gatttttgga	360
ttctttttcc	tttcatcata	tttcttctga	atttttttag	atcgtttttt	gtttaaaatc	420
tcttcttctc	caggagtcag	cttggccccc	gccgcattca	cacagtcctg	gtgcggggag	480
gtaacaagaa	ataccgtgcc	ctgaggttgg	acgtggggaa	tttctcctgg	ggctcagagt	540
ggtgtactcg	taaaacaagg	atcatcgatg	gtgnctacaa	tgcattctaat	aacgagctgg	600
gtcggacca	aagaacctgg	ngaanaaatg	gatcgnctca	tcgacaggac	accgtaccgg	660
acaggggnac	gantccact	atgcgcttgc	ccctggggccg	caanaaagga	aaactgcccg	720
ggcggccntc	gaaagcccaa	ttntggaaaa	aatccatcac	actgggnggc	cngtcgagca	780
tgcattntana	ggggcccat	ccccctnann				810

<210> 207
 <211> 257
 <212> DNA
 <213> Homo sapien

<400> 207

tgcagcggcc	gcccgggcag	gtccccaacc	aaggctgcaa	cctggatgcc	atcaaagtct	60
tctgcaacat	ggagactggt	gagacctgcg	tgtacccac	tcagcccagt	gtggccagaa	120
agaactggta	catcagcaag	aaccccaagg	acaagaggca	tgtctggttc	ggcgagagca	180
tgaccgatgg	attccagttc	gagtatggcg	gccaggggctc	cgacctgcc	gatgtggacc	240

tcggccgcga ccacgct

257

<210> 208

<211> 257

<212> DNA

<213> Homo sapien

<400> 208

agcgtggtcg	cggccgaggt	ccacatcggc	agggtcggag	ccctggccgc	catactcgaa	60
ctggaatcca	tcggtcatgc	tctcgccgaa	ccagacatgc	ctcttgctct	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggctgagtg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccagggtg	cagccttggt	tggggacctg	240
cccgggcggc	cgctcga					257

<210> 209

<211> 747

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(747)

<223> n = A,T,C or G

<400> 209

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtc	ctcggtcccg	ccctggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagcccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttcacac	ccccaatctt	300
catggaccag	agatcttgga	tgttccttcc	acagttcaaa	agaccccttt	cgtcacccac	360
cctgggtatg	acactggaaa	tggatttcag	cttcctggca	cttctggtca	gcaaccctgt	420
gttgggcaac	aaatgatctt	tgaggaacat	ggnnttaggc	ggaccacacc	gcccacaacg	480
gccaccccc	taaggcatag	gccaagacca	taccgcgcga	atgtaggaca	agaagctntn	540
tntcanacac	catntnatgg	gccccattcc	aggacacttc	tgagtacatc	atttatgnca	600
tctgtggcac	ttgatgaaaa	cccttacagt	tcagggttct	ggaactttta	ccaggcctnt	660
tacaggactn	ggccggacnc	cttaagccna	ttncaccctg	gggcgttcta	nggtcccact	720
cgnncactgg	ngaaaatggc	tactgtn				747

<210> 210

<211> 872

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(872)

<223> n = A,T,C or G

<400> 210

agcgtggtcg	cggccgaggt	ccactagagg	tctgtgtgcc	attgccaggg	cagagtctct	60
gcgttacaaa	ctcctaggag	ggcttgctgt	gcggagggcc	tgctatggtg	tgctgcggtt	120
catcatggag	agtggggcca	aaggctgcga	ggttgtggtg	tctgngaaac	tcnagggaca	180
ngagggtctaa	attccatgaa	gtttgtggat	ggcctgatga	tcacacaatc	gagaccctgt	240
taactactac	cgtctnaccn	cctgctgtnc	nccccnttt	ctgctnaana	catngggntn	300

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ntncttgnc  ntccttgggt  ngaanatnna  atngcctncc  cnttctntanc  nctactngnt  360
ccananttg  ccttttaaana  atccnccttg  ccttnnnac  tgttcanntn  tttntcgt  420
aaccctatna  nttnnattan  atnntnnnnn  nctcaccccc  ctctcattn  anccnatang  480
ctnnnaantc  cttannncct  cccncccnnt  ncnctctac  tnantncttc  tnncccata  540
cnnagctctt  tcntttaana  taatgnngcc  nngctctnca  tntctacnat  ntgnnnaatn  600
ccccncccc  cnancgnntt  tttgacctnn  naacctcctt  tctcttccc  tncnnaaatt  660
ncnnanttcc  ncnttcenn  ntttcggntn  ntcccatnct  ttccannnct  teantctanc  720
ncnctncaac  ttattttcct  ntcacccctt  nttctttaca  nccccctnn  tctactcnn  780
nnttncatta  natttgaaac  tnccacnct  anttncctcn  ctctacnntt  ttattttncg  840
ntcnctctac  ntaatanttt  aatnanttnt  cn  872

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<210> 211
<211> 517
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(517)
<223> n = A,T,C or G

```

```

<400> 211
tcgagcggcc  gcccgggcag  gtctgccaag  gagacctgt  tatgtgtgg  ggactggctg  60
gggcatggca  ggcggctctg  gcttcccacc  cttctgttct  gagatggggg  tgggtgggcag  120
tatctcatct  ttgggttcca  caatgctcac  gtggtcaggc  aggggcttct  tagggccaat  180
cttaccagtt  ggggtcccag  gcagcatgat  cttcaccttg  atgccagca  caccctgtct  240
gagcaacacg  tggcgacaaa  gcagtgtcaa  cgtagtaagt  taacagggtc  tccgtgtggt  300
atcatcaggc  catccacaaa  cttcatggat  ttagccctct  gtccctggag  tttcccagac  360
accacaacct  cgcagccttt  ggccccactc  tccatgatga  accgcagcac  accatagcag  420
gccctccgca  caagcaagcc  ctcctaagaa  tttgtaacgc  ananactctg  ctggcaatgg  480
cacacaaacc  tctagtggac  ctcggnccgc  accacgc  517

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```

<210> 212
<211> 695
<212> DNA
<213> Homo sapien

```

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<220>
<221> misc_feature
<222> (1)...(695)
<223> n = A,T,C or G

```

```

<400> 212
tcgagcggcc  gcccgggcag  gtctgggtcca  ggatagcctg  cgagtccctc  tactgtact  60
ccagacttga  catcatatga  atcatactgg  ggagaatagt  tctgaggacc  agtagggcat  120
gattcacaga  ttccaggggg  gccaggagaa  ccaggggacc  ctggttgctc  tggaatacca  180
gggtcaccat  ttctcccagg  aataccagga  gggcctggat  ctcccttggg  gccttgagggt  240
ccttgaccat  taggagggcg  agtaggagca  gttggaggct  gtgggcaaac  tgcacaacat  300
tctccaaatg  gaattttctg  gttggggcag  tctaattctt  gatccgtcac  atattatgtc  360
atcgagaga  acggatcctg  agtcacagac  acatatttgg  catggttctg  gcttccagac  420
atctctatcc  gncataggac  tgaccaagat  gggaaacatcc  tccttcaaca  agcttntctg  480
tgtgccaaaa  ataatagtgg  gatgaagcag  accgagaagt  anccagctcc  cctttttgca  540
caaagcntca  tcatgtctaa  atatcagaca  tgagacttct  ttgggcaaaa  aaggagaaaa  600
agaaaaagca  gttcaaagta  nccnccatca  agttggttcc  ttgccnttc  agcaccggg  660
ccccgttata  aaacacctng  ggccggaccc  ccctt  695

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<210> 213
<211> 804
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(804)
<223> n = A,T,C or G

<400> 213
agcgtggtcg cggccgaggt gttttatgac gggcccgggtg ctgaagggca gggaacaact 60
tgatggtgct actttgaact gcttttcttt tctccttttt gcacaaagag tctcatgtct 120
gatattttaga catgatgagc tttgtgcaaa aggggagctg gctacttctc gctctgcttc 180
atcccactat tatttttgga caacaggaag ctgttgaagg aggatgttcc catcttggtc 240
agtcctatgc ggatagagat gtctggaagc cagaaccatg ccaaatatgt gtctgtgact 300
caggatccgt tctctgcat gacataatat gtgacgatca agaattagac tgccccaacc 360
cagaaattcc atttgagaa tgttggtgag tttgccaca gcctccaact gctcctactc 420
gccctcctaa tgggtcaagga cctcaaggcc ccaagggaga tccaggccct cctggtattc 480
ctgggagaaa tgggtgaccct ggtattccag gacaaccagg gtcccctggt tctcctggcc 540
cccctggaat cngngaatc atgccctact ggtcctcaa ctattctccc anatgattca 600
tatgatgtca agtctgggat agcnagtang ganggactcg caggctattc tggaccanac 660
ctgccggggg ggcgttcgaa agcccgaatc tgcananntn cnttcacact ggcggccgtc 720
gagctgcttt aaaagggcc ttcnccttt agngnggggg antacaatta ctnggcggcg 780
ttttanancg cngnctggg aaat 804

<210> 214
<211> 594
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(594)
<223> n = A,T,C or G

<400> 214
agcgtggtcg cggccgaggt ccacatcggc agggctggag ccctggccgc catactcgaa 60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgctct tggggttctt 120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtaacgc aggtctcacc 180
agtctccatg ttgcagaaga ctttgatggc atccaggttg cagccttggt tggggtcaat 240
ccagtactct ccactcttcc agtcagagtg gcacatcttg aggtcacggc aggtgcgggc 300
ggggttcttg cggctgccct ctgggctccg gatgttctcg atctgctggc tcaggctctt 360
gagggtggtg tccacctcga ggtcacggtc acgaaccaca ttggcatcat cagcccggta 420
gtagcggcca ccatcgtgag ctttctcttg angtggctgg ggcaggaact gaagtcgaaa 480
ccagcgtgag gaggaccagg gggaccaana ggtccaggaa gggcccgggg gggaccaaca 540
ggaccagcat caccaagtgc gaccgcgag aacctgcccg gccgnccgct cgaa 594

<210> 215
<211> 590
<212> DNA
<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(590)
 <223> n = A,T,C or G

<400> 215

tgcagcggnnc	gcccgggag	gtctcgcggt	cgcactgggtg	atgctgggtcc	tgttggtccc	60
cccggccctc	ctggacctcc	tggtccccc	ggctcctccc	gcgctgggtt	cgacttcagc	120
ttcctgcccc	agccacctca	agagaaggct	cacgatgggtg	gccgctacta	ccgggctgat	180
gatgccaatg	tggttcgtga	ccgtgacctc	gaggtggaca	ccacctcaa	gagcctgagc	240
cagcagatcg	agaacatccg	gagcccagag	ggcagccgca	agaaccccg	ccgcacctgc	300
cgtgacctca	agatgtgcca	ctctgactgg	aagagtggag	agtactggat	tgaccccaac	360
caaggctgca	acctggatgc	catcaaagtc	ttctgcaaca	tggagactgg	tgagacctgc	420
gtgtacccca	ctcagcccag	tgtggcccag	aagaactggg	acatcagcaa	gaaccccaag	480
gacaagaggc	atgtctgggt	cggcgagagc	atgaccgatg	gattccagtt	cgagtatggc	540
ggccagggct	cccacctgc	cgatgtggac	ctcggccgc	gaccacctt		590

<210> 216
 <211> 801
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(801)
 <223> n = A,T,C or G

<400> 216

tngagcggcc	gcccgggag	gntgnnaacg	ctggctcctgc	tggtcctcct	ggcaaggctg	60
gtgaagatgg	tcaccctgga	aaacccggac	gacctgggtga	gagaggagtt	gttggaaccac	120
aggggtgctcg	tggtttccct	ggaactcctg	gacttcctgg	cttcaaaggc	attaggggac	180
acaatggtct	ggatggattg	aagggacagc	ccggtgctcc	tggtgtgaag	ggtgaacctg	240
gtgcccctgg	tgaaaatgga	actccaggtc	aaacaggagc	ccgtgggctt	cctggtgaga	300
gaggaccctg	ttgggtgccc	tggcccanac	ctcggccgcg	accacgctaa	gcccgaattt	360
ccagcacact	ggnggccgtt	actantggat	ccgagctcgg	taccaagctt	ggcgtaatca	420
tggtcatagc	tgtttcctgn	gtgaaattgt	tatccgctca	caatttcaca	cancatacga	480
agccggaaaag	cataaagtgt	aaagccttgg	ggtgctaattg	agtgaagctaa	ctcncattaa	540
attgcgttgc	gtcactgcc	cgcttttcca	nnngggaaac	cntggcntng	ccngcttgcn	600
ttaantgaaa	tccgccnacc	cccggggaaa	agnccggttg	cngtattggg	gcnccttttc	660
cctttcctcg	gnttacttga	nttantgggc	tttggncgnt	tcgggttgng	gcgancnggt	720
tcaacntcac	nccaaaggng	gnaanacggt	tttcccanaa	tccgggggnt	ancccaangn	780
aaaacatnng	ncaangggc	t				801

<210> 217
 <211> 349
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(349)
 <223> n = A,T,C or G

<400> 217

agcgtgggttn	gcggccgagg	tctggggccag	gggcaccaac	acgtcctctc	tcaccaggaa	60
gcccacggggc	tcctgtttga	cctggagttc	cattttcacc	aggggcacca	ggttcaccct	120

tcacaccagg	agcaccgggc	tgtcccttca	atccatncag	accattgtgn	cccctaattgc	180
ctttgaagcc	aggaagtcca	ggagttccag	ggaaaccacc	gagcaccctg	tggccaaca	240
actcctctct	caccaggteg	tccgggtttt	ccagggtgac	catcttcacc	agccttgcca	300
ggaggaccag	caggaccagc	gttaccaacc	tgcccgggcg	gccgctcga		349

<210> 218
 <211> 372
 <212> DNA
 <213> Homo sapien

<400> 218	
tgcagcggcc	gcccgggcag
gtagttcaca	ccattgtcat
aaagcctaag	cactggcaca
tccaacggca	taatgggaaa
caagccttcg	ttgacagagt
ctggtctttc	agtgcctcca
cgcgaccacg	ct

<210> 219
 <211> 374
 <212> DNA
 <213> Homo sapien

<400> 219	
agcgtggtcg	cggccgaggt
ctgaaagacc	agcagaggca
aacgaaggct	tgaaccaacc
tatgccgttg	gagatgagt
tgcttaggct	ttggaagtgg
tggtgtgaac	tacaagattg
ggccggccgc	tcga

<210> 220
 <211> 828
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(828)
 <223> n = A,T,C or G

<400> 220	
tgcagcgnnc	gcccgggcag
gcggcagttg	tcacagcgcc
accgagatat	tccttctgcc
cgttgcctca	tgagggtcac
catttggtcg	gctctatagt
tcctccttct	ctactggagc
cttctatcaa	tttcattgac
cagagcgatt	aggagaacca
ctttgggagg	agatttcagt
tagcaaaaaga	agaaacngta
ncccagaact	tcaccatcta

tcanaaaagga	cccaagtagc	nccatgggna	gcacttttag	cctttccctt	ggggaaaann	720
ttacntttctt	aaancctngg	ccnngacccc	cttaagncca	aattntggaa	aanttcctn	780
cnntctggggg	gcngttcnac	atgcntttna	agggcccaat	tncccnt		828

<210> 221

<211> 476

<212> DNA

<213> Homo sapien

<400> 221

tcgagcggcc	gcccgggcag	gtgtcggagt	ccagcacggg	aggcgtggtc	ttgtagttgt	60
tctccggctg	cccattgctc	tcccactcca	cggcgatgct	gctgggatag	aagcctttga	120
ccaggcaggt	caggctgacc	tggttcttgg	tcactctctc	ccgggatggg	ggcagggtgt	180
acacctgtgg	ttctcggggc	tgccctttgg	ctttggagat	ggttttctcg	atgggggctg	240
ggagggcttt	gttgagacc	ttgcacttgt	actccttgcc	attcagccag	tcctgggtgca	300
ggacgggtgag	gacgctgacc	acacggtagc	tgctgttgta	ctgctcctcc	cgcggctttg	360
tcttggcatt	atgcacctcc	acgccgtcca	cgtaccagtt	gaacttgacc	tcagggtctt	420
cgtggctcac	gtccaccacc	acgcatgtaa	cctcagacct	cggccgcgac	cacgct	476

<210> 222

<211> 477

<212> DNA

<213> Homo sapien

<400> 222

agcgtggctg	cggccgaggt	ctgagggttac	atgcgtgggtg	gtggacgtga	gccacgaaga	60
ccctgaggtc	aagttcaact	ggtacgtgga	cggcgaggag	gtgcataatg	ccaagacaaa	120
gccgcgggag	gagcagtaca	acagcacgta	ccgtgtgggtc	agcgtcctca	ccgtcctgca	180
ccaggactgg	ctgaatggca	aggagtacaa	gtgcaagggtc	tccaacaaaag	ccctcccagc	240
ccccatcgag	aaaaccatct	ccaaagccaa	agggcaagcc	ccgagaacca	caggtgtaca	300
ccctgcccc	atcccgggag	gagatgacca	agaaccaggt	cagcctgacc	tgcttgggtca	360
aaggcttcta	tcccagcgac	atcgccgtgg	agtgggagag	caatgggcag	ccggagaaca	420
actacaagac	cacgcctccc	gtgctggact	ccgacacctg	cccgggcggc	cgctcga	477

<210> 223

<211> 361

<212> DNA

<213> Homo sapien

<400> 223

tcgagcggcc	gcccgggcag	gttgaatggc	tcctcgctga	ccaccccggt	gctggtgggtg	60
ggtacagagc	tccgatgggt	gaaaccattg	acatagagac	tgtccctgtc	caggggtgtag	120
gggcccagct	cagtgatgcc	gtgggtcagc	tggctcagct	tccagtacag	ccgtctcttg	180
tccagtccag	ggcttttggg	gtcaggacga	tgggtgcaga	cagcatccac	tctggtggct	240
gccccatcct	tctcaggcct	gagcaaggct	agtctgcaac	cagagtacag	agagctgaca	300
ctggtgttct	tgaacaaggg	cataagcaga	ccctgaagga	cacctcggcc	gcgaaccacgc	360
t						361

<210> 224

<211> 361

<212> DNA

<213> Homo sapien

<400> 224

agcgtggctg	cggccgaggt	gtccttcagg	gtctgcttat	gcccttggtc	aagaacacca	60
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gtgtcagctc tctgtactct ggttgacagac tgaccttgct caggcctgag aaggatgggg 120
cagccaccag agtggatgct gtctgcaccc atcgtcctga ccccaaaagc cctggactgg 180
acagagagcg gctgtactgg aagctgagcc agctgaccca cggcatcact gagctggggc 240
cctacaccct ggacagggac agtctctatg tcaatgggtt caccatcgg agctctgtac 300
ccaccaccag caccggggtg gtcagcgagg agccattcaa cctgcccggg cggcogctcg 360
a 361

```

```

<210> 225
<211> 766
<212> DNA
<213> Homo sapien

```

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<220>
<221> misc_feature
<222> (1)...(766)
<223> n = A,T,C or G

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<400> 225
agcgtgggtc cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga 60
actgtaaggg ttcttcatca gtgccacag gatgacatga aatgatgtac tcagaagtgt 120
cctggaatgg ggcccatgag atgggtgtct gagagagagc ttcttgcctt acattcggcg 180
ggtatgggtc tggcctatgc cttatggggg tggccgttgt gggcgggtgt gtccgcctaa 240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag 300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaaggg gtcttttgaa 360
ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca 420
gttgggggaag ctgctctgtc ttttctcttc caatcagggg ctgctcttc tgattattct 480
tcagggcaat gacataaatt gtatattcgg tcccggttcc aggccagtaa tagtagcctc 540
tgtgacacca gggcggggcc gagggacct tctnttgga gagaccagct tctcatactt 600
gatgatgagn ccggtaatcc tggcacgtgg nggttgcatg atnccaccaa ggaaatnggn 660
gggggnggac ctgcccggcg gccgttcnaa agcccaattc cacacacttg gnggccgtac 720
tatggatccc actcngtcca acttgngnga atatggcata actttt 766

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<210> 226
<211> 364
<212> DNA
<213> Homo sapien

```

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<400> 226
tcgagcggcc gcccgggcag gtccttgacc ttttcagcaa gtgggaaggt gtaatccgtc 60
tccacagaca aggccaggac tcgtttgtac ccgttgatga tagaatggg tactgatgca 120
acagttgggt agccaatctg cagacagaca ctggcaacat tgcggacacc ctccaggaag 180
cgagaatgca gagtttcttc tgtgatata agcacttcag ggttgtagat gctgccattg 240
tcgaacacct gctggatgac cagcccaaag gagaagggg agatgttgag catgttcagc 300
agcgtggctt cgctggctcc cactttgtct ccagtcttga tcagacctcg gccgcgacca 360
cgct 364

```

```

<210> 227
<211> 275
<212> DNA
<213> Homo sapien

```

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<400> 227
agcgtgggtc cggccgaggt ctgtcctaca gtcctcagga ctctactccc tcagcagcgt 60
ggtgaccgtg cctccagca acttcggcac ccagacctac acctgcaacg tagatcacia 120
gccagcaac accaaggtgg acaagagagt tgagcccaaa tcttgtgaca aaactcacac 180

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atgcccaccg tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccg 240
catccccctt ccaaacctgc ccgggcggcc gctcg 275

<210> 228
<211> 275
<212> DNA
<213> Homo sapien

<400> 228
cgagcggccg cccgggcagg tttggaagg ggatgcgggg gaagaggaag actgacggtc 60
ccccaggag ttcagggtgt gggcacgggt ggcattgtgt agttttgtca caagatttgg 120
gctcaactct cttgtccacc ttgggtgttg tgggcttgtg atctacgttg caggtgtagg 180
tctgggtgcc gaagttgctg gagggcacgg tcaccacgct gctgagggag tagagtcctg 240
aggactgtag gacagacctc ggccgcgacc acgct 275

<210> 229
<211> 40
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(40)
<223> n = A,T,C or G

<400> 229
nggnnggtcc ggnngncag gaccactent cttcgaaata 40

<210> 230
<211> 208
<212> DNA
<213> Homo sapien

<400> 230
agcgtggctg cggccgaggt cctcacttgc ctccctgcaaa gcaccgatag ctgcgctctg 60
gaagcgcaga tctgttttaa agtcctgagc aatttctcgc accagacgct ggaagggaag 120
tttgccaatc agaagttcag tggacttctg ataacgtcta atttcacgga gcgccacagt 180
accaggacct gcccgggcgg ccgctcga 208

<210> 231
<211> 208
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(208)
<223> n = A,T,C or G

<400> 231
tcgagcggcc gcccgggcag gtccctggtac tgnngcgctc cgtgaaatta gacgttatca 60
gaagtccact gaacttctga ttgcgaaact tcccttccag cgtctggtgc gagaaattgc 120
tcaggacttt aaaacagatc tgcgcttcca gagcgcagct atcggtgctt tgcaggaggc 180
aagtgaggac ctcggccgcg accacgct 208

<210> 232
<211> 332
<212> DNA
<213> Homo sapien

<400> 232
tcgagcggcc gcccgggcag gtccacatcg gcagggctcg agccctggcc gccatactcg 60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgct cttgggggttc 120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tggggtacac gcaggtctca 180
ccagtctcca tgttgagaa gactttgatg gcatccagg tgcagccttg gttgggggtca 240
atccagtact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg 300
gcgggggttct tgacctcgcc cgcgaccacg ct 332

<210> 233
<211> 415
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(415)
<223> n = A,T,C or G

<400> 233
gtgggnttga accnttttna nctccgcttg gtaccgagct cggatccact agtaacggcc 60
gccagtgtgc tggaaattcgg cttagcgtgg tcgcggccga ggtcaagaac cccgcccgca 120
cctgccgtga cctcaagatg tgccactctg actggaagag tggagagtac tggattgacc 180
ccaaccaagg ctgcaacctg gatgccatca aagtcttctg caacatggag actggtgaga 240
cctgcgtgta cccactcag ccagtggtg cccagaagaa ctggtacatc agcaagaacc 300
ccaaggacaa gaggcagtgc tggttcggcg agagcatgac cgatggattc cagttcaggt 360
atggcggcca gggctccgac cctgccgatg tggacctgcc cgggcggccg ctcca 415

<210> 234
<211> 776
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(776)
<223> n = A,T,C or G

<400> 234
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc 60
acttacggag aaacaggagg aaatagccct gtccaggagt tcaactgtgcc tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca 240
gaaattgaca aaccatccca gatgcaagt accgatgttc aggacaacag cattagtgtc 300
aagtggctgc cttcaagttc cctgtttact ggttacagag taaccaccac tccccaaaaat 360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420
ggcttgacgc ccacagtgga gtatgtggtt aagtgtctat gctcagaatc caagcggaga 480
gaagtgcagc tctggttcag actgnaagta accaaccattg atcgccataa ggactggcat 540
tcaactgatgn ggatgccgat tccatcaaaa ttgnttggga aaaccacag gggcaagttt 600
ncangtcnag gnggacctac tcgagccctg aggatggaat ccttgactnt tccctnnoct 660
gatggggaaa aaaaacctn aaaacttgaa ggacctgccc gggcggccgt ncaaaaccca 720

attccacccc cttgggggcg ttctatgggn cccactcgga ccaaacttgg ggtaan

776

<210> 235
 <211> 805
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(805)
 <223> n = A,T,C or G

<400> 235

tcgagcggcc	gcccgggcag	gtccttgacg	ctctgcagtg	tcttcttcac	catcaggtgc	60
aggggaatagc	tcatggattc	catcctcagg	gctcgagtag	gtcacccctgt	acctggaaac	120
ttgcccctgt	gggctttccc	aagcaatttt	gatggaatcg	gcatccacat	cagtgaatgc	180
cagtccttta	ggcgatcaa	tggttggttac	tgacgtctga	accagaggct	gactctctcc	240
gcttggttc	tgagcataga	cactaaccac	atactccact	gtgggctgca	agccttcaat	300
agtcatttct	gtttgatctg	gacctgcagt	tttagttttt	gttggtcctg	gtccattttt	360
gggagtggtg	gttactctgt	aaccagtaac	aggggaactt	gaaggcagcc	acttgacact	420
aatgctgttg	tcctgaacat	cggtcacttg	catctgggat	ggtttgtaa	tttctgttcg	480
gtaattaatg	gaaattggct	tgctgcttgc	ggggcttgct	tccacggcca	gtgacagcat	540
acacagtgat	ggtataatca	actccagggt	taagccgctg	atggtagctg	aaactttgct	600
ccaggcacaa	gtgaactcct	gacagggcta	tttccctnctg	ttctccgtaa	gtgatcctgt	660
aatatctcac	tgggacagca	ggangcattc	caaaacttcg	ggcgngaccc	cctaagccga	720
attntgcaat	atncatcaca	ctggcgggcg	ctcgancatt	cattaaaagg	cccaatcncc	780
cctataggga	gtntantaca	attng				805

<210> 236
 <211> 262
 <212> DNA
 <213> Homo sapien

<400> 236

tcgagcggcc	gcccgggcag	gtcacttttg	gtttttggct	atgttcgggt	ggtcaaagat	60
aaaaactaag	tttgagagat	gaatgcaaag	gaaaaaaata	ttttccaaag	tccatgtgaa	120
attgtctccc	atttttttgg	cttttgaggg	ggttcagttt	gggttgcttg	tctgtttccg	180
ggttgggggg	aaagtgtgtt	gggtgggagg	gagccagggt	gggatggagg	gagtttacag	240
gaagcagaca	gggccaacgt	cg				262

<210> 237
 <211> 372
 <212> DNA
 <213> Homo sapien

<400> 237

agcgtggtcg	cggccgaggt	cctcaccaga	ggtgccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taagggtcgg	gaagagggtg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	acccctacac	agtttcccat	180
tatgccgttg	gagatgagtg	ggaacgaatg	tctgaatcag	gctttaaact	gttgtgccag	240
tgcttaggct	ttggaagtgg	tcatttcaga	tgtgattcat	ctagatggtg	ccatgacaat	300
ggtgtgaact	acaagattgg	agagaagtgg	gaccgtcagg	gagaaaatgg	acctgcccgg	360
gcggccgctc	ga					372

<210> 238

<211> 372
 <212> DNA
 <213> Homo sapien

<400> 238

tcgagcggcc	gcccgggcag	gtccattttc	tccttgacgg	tcccacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcaccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaagcctaag	cactggcaca	acagtttaaa	gcctgattca	gacattcggt	cccactcacc	180
tccaacggca	taatgggaaa	ctgtgtaggg	gtcaaagcac	gagtcacccg	taggttggtt	240
caagccttcg	ttgacagagt	tgcccacggg	aacaacctct	tcccgaacct	tatgcctctg	300
ctggcttttc	agtgcctcca	ctatgatgtt	gtaggtggca	cctctggtga	ggacctcggc	360
cgcgaccacg	ct					372

<210> 239
 <211> 720
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(720)
 <223> n = A,T,C or G

<400> 239

tcgagcggcc	gcccgggcag	gtccaccata	agtcctgata	caaccacgga	tgagctgtca	60
ggagcaaggt	tgattttctt	cattgggtccg	gtctttctct	tgggggtcac	ccgcactcga	120
tatccagtga	gctgaacatt	gggtgggtgc	cactgggcgc	tcaggcttgt	gggtgtgacc	180
tgagtgaact	tcagggtcagt	tggtgcagga	atagtgggta	ctgcagtctg	aaccagagggc	240
tgactctctc	cgcttggatt	ctgagcatag	acactaacca	catactccac	tgtgggctgc	300
aagccttcaa	tagtcatttc	tgtttgatct	ggacctgcag	ttttagtttt	tggtgggtcct	360
ggtccatttt	tgggagtggt	ggttactctg	taaccagtaa	caggggaact	tgaaggcagc	420
cacttgacac	taatgctgtt	gtcctgaaca	tcgggtcactt	gcacctggga	tggtttgnca	480
atttctgttc	ggttaattaat	ggaaattggc	ttgctgcttg	cggggctgtc	tccacggcca	540
gtgacagcat	acacagngat	ggnatnatca	actccaagtt	taaggccctg	atggtaactt	600
taaacttgct	cccagccagn	gaacttcagg	acaggggtatt	tcttctgggt	ttccgaaagn	660
gancctggaa	tnntctcctt	ggancagaag	gancntccaa	aacttggggc	ggaacccctt	720

<210> 240
 <211> 691
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(691)
 <223> n = A,T,C or G

<400> 240

agcgtggctg	cggccgaggt	cctgtcagag	tggcactggg	agaagttcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctggaatgg	ggcccatgag	atggttgtct	gagagagagc	ttcttgcctt	acattcggcg	180
ggatgggtct	tggcctatgc	cttatggggg	tggccgttgt	ggcggtgtg	gtccgcctaa	240
aaccatgttc	ctcaaagatc	atgtgtggcc	caacactggg	ttgctgacca	gaagtgccag	300
gaagctgaat	accatttcca	gtgtcatacc	caggggtggg	gacgaaaggg	gtcttttgaa	360
ctgtggaagg	aacatccaag	atctctgggc	catgaagatt	gggggtgtga	agggttacca	420


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gttggggaag ctgctctgtc tttttccttc caatcagggg ctgctctctc tgattattct 480
tcagggcaat gacataaatt gtatattcgg ttcccgggtc caggccagta atagtagcct 540
cttgtgacac caggcggggc ccanggacca cttctctggg angagaccca gcttctcata 600
cttgatgatg taacccggtg atcctgcacg tggcggctgn catgatacca ncaaggaatt 660
gggtgngngg gacctgcccg gcggccctcn a 691

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<210> 241
<211> 808
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(808)
<223> n = A,T,C or G

```

```

<400> 241
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgaagata ttacaggatc 60
acttacggag aaacaggagg aaatagccct gtccaggagt tcaactgtgcc tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca 240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc 300
aagtggctgc cttcaagttc cctgtttact ggttacagag taaccaccac tcccaaaaat 360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420
ggcttgacgc ccacagtgga gtatgtggtt agtgtctatg ctcagaatcc aagcggagag 480
agtcagcctc tggttcagac tgcagtaacc actattcctg caccaactga cctgaagttc 540
actcaggtca caccacaag cctgagccgc cagtggacac caccocatgt tcaactcactg 600
gatatcgagt gcgggtgacc cccaaggaga agaccgggac ccatgaaaga aatcaacctt 660
gctcctgaca gctcatccgn ggggtgatca ggacttatgg gggactgcc cggcnggccg 720
ntcgaaancg aattntgaaa tttccttcnc actgggnggc gnttcgagct tncctntana 780
nggcccaatt cncctntagn gggtcgtg 808

```

```

<210> 242
<211> 26
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

```

```

<400> 242
agcgtggtcg cggccgaggt cnagga 26

```

```

<210> 243
<211> 697
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(697)
<223> n = A,T,C or G

```

<400> 243

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtggcc	ctcgcccccg	ccctggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagcccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttccaca	ccccaatctt	300
catggaccag	agatcttgga	tgttccttcc	acagttcaaa	agaccccttt	cgtcaccac	360
cctgggtatg	acactggaaa	tggtattcag	cttcctggca	cttctggtca	gcaacccagt	420
gttgggcaac	aaatgatctt	tgaggaacat	ggttttaggc	ggaccacacc	gcccacaacg	480
ggcaccoccc	taaggnatag	gccaagacca	taccccgccg	aatgtaggac	aagaagctct	540
ntctcaacaa	ccatctcatg	ggccccattc	caggacactt	ctgagtacat	catttcatgt	600
catcctgggtg	ggcacttgat	gaanaaccct	tacagttcag	ggttcctgga	acttctacca	660
gngccacttc	tgacagganc	ttgggcgnga	ccaccct			697

<210> 244

<211> 373

<212> DNA

<213> Homo sapien

<400> 244

agcgtggtcg	cggccgaggt	ccattttctc	cctgacgggc	ccacttctct	ccaatcttgt	60
agttcacacc	attgtcatgg	caccatctag	atgaatcaca	tctgaaatga	ccacttccaa	120
agcctaagca	ctggcacaac	agttttaaagc	ctgattcaga	cattcgttcc	cactcatctc	180
caacggcata	atgggaaact	gtgtaggggt	caaagcacga	gtcatccgta	ggttggttca	240
agccttcggt	gacagagttg	cccacggtaa	caacctcttc	ccgaacctta	tgctctgtct	300
ggctcttcag	tgcttccact	atgatgttgt	aggtggcacc	tctgggtgagg	acctgcccgg	360
gcggccccgct	cga					373

<210> 245

<211> 307

<212> DNA

<213> Homo sapien

<400> 245

agcgtggtcg	cggccgaggt	gtgccccaga	ccaggaattc	ggcttcgacg	ttggccctgt	60
ctgcttcctg	taaactccct	ccatcccaac	ctggctccct	cccacccaac	caactttccc	120
cccaacccgg	aaacagacaa	gcaacccaaa	ctgaaccccc	tcaaaagcca	aaaaaatggg	180
agacaatttc	acatggactt	tggaaaatat	ttttttcctt	tgcatcctac	tctcaaactt	240
agtttttatc	tttgaccaac	cgaacatgac	caaaaaccaa	aagtgacctg	cccgggcggc	300
cgctcga						307

<210> 246

<211> 372

<212> DNA

<213> Homo sapien

<400> 246

tcgagcggcc	gcccgggcag	gtcctcacca	gaggtgccac	ctacaacatc	atagtggagg	60
cactgaaaga	ccagcagagg	cataagggtc	gggaagaggt	tgttaccgtg	ggcaactctg	120
tcaacgaagg	cttgaaccaa	cctacggatg	actcgtgctt	tgacccctac	acagtttccc	180
attatgccgt	tggagatgag	tgggaacgaa	tgtctgaatc	aggctttaaa	ctgttggtgcc	240
agtgtctagg	ctttggaagt	ggtcatttca	gatgtgattc	atctagatgg	tgccatgaca	300
atggtgtgaa	ctacaagatt	ggagagaagt	gggaccgtca	gggagaaaat	ggacctcggc	360
cgcgaccacg	ct					372

<210> 247
 <211> 348
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(348)
 <223> n = A,T,C or G

<400> 247
 tcgagcggcc gcccgggcag gtaccggggt ggtcagcgag gagccattca cactgaactt 60
 caccatcaac aacctgcggt atgaggagaa catgcagcac cctggctcca ggaagttcaa 120
 caccacggag agggtccttc agggcctgct caggtccttg ttcaagagca ccagtgttgg 180
 ccctctgtac tctggctgca gactgacttt gctcagacct gagaaacatg gggcagccac 240
 tggagtggac gccatctgca ccctccgct tgatcccact ggttctggac tggacanana 300
 gcggctatac ttgggagctg anccnaacct ttggcgnga cncnctt 348

<210> 248
 <211> 304
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(304)
 <223> n = A,T,C or G

<400> 248
 gaggactggc tcagctccca gtatagccgc tctctgtcca gtccaggacc agtgggatca 60
 aggcggaggg tgcagatggc gtccactcca gtggctgccc catgtttctc aagtctgagc 120
 aaagncagtc tgcagccaga gtacagaggg ccaacactgg tgctcttgaa cagggacctg 180
 agcagggcct gaaggaccct ctccgtggtg ttgaacttcc tggagccagg gtgctgcatg 240
 ttctcctcat accgcagggt gttgatggtg aagttcagtg tgaatggctc ctgctgacc 300
 accc 304

<210> 249
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 249
 agcgtgggtcg cggccgaggt ccaccacacc caattccttg ctggtatcat ggcagccgcc 60
 acgtgccagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga 120
 agtggctcct cggccccgcc ctgggtgtcac agaggctact attactggcc tggaaaccggg 180
 aaccgaatat acaatttatg tcattgccct gaagaataat cagaagagcg agccccgat 240
 tggaaaggaaa aagacagacg agcttcccca actggttaacc cttccacacc ccaatcttca 300
 tggaccanan ancttgatn gtcctttcac nggttnaaaa aacccttttc gccccccac 360
 cttgggggatt aaccttgga aanggggatt tnaccnttcc 400

<210> 250
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 250
 tcgagcggcc gcccgggcag gtcctgtcag agtggcactg gtagaagtgc caggaaccct 60
 gaactgtaag ggttcttcat cagtgccaac aggatgacat gaaatgatgt actcagaagt 120
 gtcctggaat ggggcccatg agatggttgt ctgagagaga gcttcttgtc ctacattcgg 180
 cgggtatggt cttggcctat gccttatggg ggtggccgtt gtgggcggtg tgggccgcct 240
 aaaaccatgt tcctcaaaga tcatttggtg cccaacactg ggttgctgac cagaagtgcc 300
 aggaagctga ataccatttc cagtgtcata ccagggngg gtgaccaaag ggggtcnttt 360
 ngacctgng aaaggaacca tccaaaanct ctgncccatg 400

<210> 251
 <211> 514
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(514)
 <223> n = A,T,C or G

<400> 251
 agcgtggncg cggccgaggt ctgaggatgt aaactcttcc caggggaagg ctgaagtgct 60
 gaccatggtg ctactgggtc cttctgagtc agatatgtga ctgatngaa ctgaagtagg 120
 tactgtagat ggtgaagtct ggggtgccct aaatgctgca tctccagagc cttccatcat 180
 taccgtttct tcttttgcta tgggatgaga cactgttgag tattctctaa agtcaccact 240
 gaaatcttcc tccaaaggaa aacctgtgga aaagccccctt atttctgccc cataatttgg 300
 ttctcctaata cncctctgaaa tcactatttc cctggaangt ttgggaaaaa nngggcnacc 360
 tgncantgga aantggatan aaagatccca ccattttacc caacnagcag aaagtgggaa 420
 nggtaccgaa aagctccaag taanaaaaag gaggggaagta aaggtcaagt gggcaccagt 480
 ttcaaacaaa actttcccca aactatanaa ccca 514

<210> 252
 <211> 501
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(501)
 <223> n = A,T,C or G

<400> 252
 aagcggccgc ccgggcaggn ncagnagtgc cttcgggact gggntcacc caggtctgc 60
 ggcagttgtc acagcgccag ccccgctggc ctccaaagca tgtgcaggag caaatggcac 120
 cgagatattc cttctgccac tgttctcta cgtggtatgt cttcccatca tcgtaacacg 180
 ttgcctcatg agggtcacac ttgaattctc cttttccgtt cccaagacat gtgcagctca 240

```

tttggctggc tctatagttt ggggaaagt tgttgaaact gtgccactga cctttacttc 300
ctccttctct actggagctt tccgtacctt ccacttctgc tgntggnaaa aaggngggaa 360
cntcttatca atttcattgg acagtanccc nctttctncc caaaacatnc aagggaaaat 420
attgattncn agagcggatt aaggaacaac ccnaattatg ggggccagaa ataaaggggg 480
cttttccaca ggtnttttcc t 501

```

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<210> 253
<211> 226
<212> DNA
<213> Homo sapien

```

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<400> 253
tcgagcggcc gcccgggcag gtctgcaggc tattgtaagt gttctgagca catatgagat 60
aacctgggcc aagctatgat gttcgatacg ttaggtgtat taaatgcact tttgactgcc 120
atctcagtgg atgacagcct tctcactgac agcagagatc ttcctcactg tgccagtggg 180
caggagaaag agcatgctgc gactggacct cggccgcgac cacgct 226

```

```

<210> 254
<211> 226
<212> DNA
<213> Homo sapien

```

```

<400> 254
agcgtggtcg cggccgaggt ccagtcgcag catgctcttt ctctgcccac ctggcacagt 60
gaggaagatc tctgctgtca gtgagaaggc tgtcatccac tgagatggca gtcaaaagtg 120
catttaatac acctaacgta tcgaacatca tagcttggcc caggttatct catatgtgct 180
cagaacactt acaatagcct gcagacctgc ccgggcggcc gctcga 226

```

```

<210> 255
<211> 427
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(427)
<223> n = A,T,C or G

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<400> 255
cgagcggccg cccgggcagg tccagactcc aatccagaga accaccaagc cagatgtcag 60
aagctacacc atcacagggt tacaaccagg cactgactac aagatctacc tgtacacctt 120
gaatgacaat gctcggagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc 180
atccaacctg cgtttccttg ccaccacacc caattccttg ctggtatcat ggcagccgcc 240
acgtgccagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga 300
agtggtcctt cggccccgcc ctggtgncac agaagctact attactggcc tggaaccggg 360
aaccgaatat acaatttatg tcattgccct gaagaataat canaagagcg agccccgat 420
tggaagg 427

```

```

<210> 256
<211> 535
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature

```

<222> (1)...(535)

<223> n = A,T,C or G

<400> 256

agcgtggtcg	cggccgaggt	cctgtcagag	tggcactggt	agaagttcca	ggaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagtgt	120
cctggaatgg	ggcccatgag	atggttgtct	gagagagagc	ttcttgcctt	gtctttttcc	180
ttccaatcag	gggtcgcctc	ttctgattat	tcttcagggc	aatgacataa	attgtatatt	240
cggttcccgg	ttccaggcca	gtaatagtag	cctctgtgac	accagggcgg	ggccgagggg	300
ccacttctct	gggaggagac	ccaggcttct	catacttgat	gatgtanccg	gtaatcctgg	360
caccgtggcg	gctgccatga	taccagcaag	gaattgggtg	tggtaggcaa	gaaacgcagg	420
ttggatgggtg	catcaatggc	agtggaggcg	tcgatnacca	caggggagct	ccgancattg	480
tcattcaagg	tggacaggta	gaatcttgta	atcagggtgcc	tggtttgtaa	acctg	535

<210> 257

<211> 544

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(544)

<223> n = A,T,C or G

<400> 257

tcgagcggcc	gcccgggcag	gtttcgtgac	cgtgacctcg	aggtggacac	caccctcaag	60
agcctgagcc	agcagatcga	gaacatccgg	agcccagagg	gcagccgcaa	gaaccccggc	120
cgcacctgcc	gtgacctcaa	gatgtgccac	tctgactgga	agagtggaga	gtactggatt	180
gaccccaacc	aaggctgcaa	cctggatgcc	atcaaagtct	tctgcaacat	ggagactggt	240
gagacctgcg	tgtacccccc	tcagcccagt	gtggcccaga	agaactggta	catcagcaag	300
aaccccaagg	acaagaagca	tgtctggttc	ggcgaaagca	tgaccgatgg	attccagttc	360
gagtatggcg	gccaggggctc	cgacctgccc	gatgtggacc	tcggccgcga	ccacgctaag	420
cccgaattcc	agcacactgg	cggccgttac	tagtgggata	cgagcttcgg	taccaagctt	480
ggcgtaatca	tgggnccatag	ctgtttcctg	ngtgaaaatg	gtattccgct	tcacaatttc	540
ccac						544

<210> 258

<211> 418

<212> DNA

<213> Homo sapien

<400> 258

agcgtggtcg	cggccgaggt	ccacatcggc	agggtcggag	ccctggccgc	catactcgaa	60
ctggaatcca	tcggtcatgc	tctcgccgaa	ccagacatgc	ctcttgcctt	tggggttctt	120
gctgatgtac	cagttcttct	gggccacact	gggtcagatg	gggtacacgc	aggtctcacc	180
agtctccatg	ttgcagaaga	ctttgatggc	atccagggtg	cagccttggt	tgggggtcaat	240
ccagtactct	ccactcttcc	agtcagagtg	gcacatcttg	aggtcacggc	aggtgcgggc	300
gggggttctg	cggtgcctt	ctgggtcccg	gatgttctcg	atctgctggc	tcaagctctt	360
gaaggggtggt	gtccacctcg	aggtcacggt	cacgaaacct	gcccggggcg	ccgctcga	418

<210> 259

<211> 377

<212> DNA

<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(377)
<223> n = A,T,C or G

<400> 259
agcgtggtcg cggccgaggt caagaacccc gcccgcacct gccgtgacct caagatgtgc 60
cactctgact ggaagagtgg agagtactgg attgacccca accaaggctg caacctggat 120
gccatcaaag tcttctgcaa catggagact ggtgagacct gcgtgtaccc cactcagccc 180
agtgtggccc agaagaactg gtacatcagc aagaacccca aggacaagag gcatgtctgg 240
ttcggcgaga gcatgaccga tggattccag ttcgagtatg gcggccaggg ctccgacct 300
gccgatgtgg acctgccgn gccggnccgc tcgaaaagcc cnaatttcca gncacacttg 360
gccggccgtt actactg 377

<210> 260
<211> 332
<212> DNA
<213> Homo sapien

<400> 260
tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg 60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttgggggttc 120
ttgctgatgt accagttctt ctggggcaca ctgggctgag tggggtagac gcaggtctca 180
ccagttctca tgttgagaa gactttgatg gcatccaggt tgcagccttg gttgggggtca 240
atccagtact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg 300
gcgggggtct tgacctcggc cgcgaccacg ct 332

<210> 261
<211> 94
<212> DNA
<213> Homo sapien

<400> 261
cgagcggcgg cccgggcagg tccccccct tttttttttt tttttttttt tttttttttt 60
tttttttttt tttttttttt tttttttttt tttt 94

<210> 262
<211> 650
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(650)
<223> n = A,T,C or G

<400> 262
agcgtggtcg cggccgaggt ctggcattcc ttcgacttct ctccagccga gcttcccaga 60
acatcacata tcaactgaaa aatagcattg catacatgga tcaggccagt ggaaatgtaa 120
agaaggccct gaagctgatg gggtaaaatg aagggtgaatt caaggctgaa ggaaatagca 180
aattcaccta cacagttctg gaggatgggt gcacgaaaca cactggggaa tggagcaaaa 240
cagtctttga atatcgaaca cgcaaggctg tgagactacc tattgtagat attgcacct 300
atgacattgg tggctcctgat caagaatttg gtgtggacgt tggccctggt tgctttttat 360
aaaccaaact ctatctgaaa tcccaacaaa aaaaatttaa ctccatatgt gntcctcttg 420
ttctaattctt ggcaaccagt gcaagtgacc gacaaaattc cagttattta tttccaaaat 480

gtttggaaac	agtataattt	gacaaagaaa	aaaggatact	tctctttttt	tggtctgtcc	540
accaaataca	attcaaaagg	ctttttgggt	ttattttttt	anccaattcc	aatttcacaaa	600
tgtctcaatg	gngcttataa	taaaataaac	tttcaccctt	ntttntgat		650

<210> 263

<211> 573

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(573)

<223> n = A,T,C or G

<400> 263

agcgtggtcg	cgcccgaggt	ctgggatgct	cctgctgtca	cagtgtgata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tactgtgcc	tgggagcaag	120
tctacagcta	ccatcagcgg	ccttaaacct	ggagttgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaagc	agcaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aaccatccca	gatgcaagt	accgatgttc	aggacaacag	cattagtgtc	300
aagtggctgc	cttcaagtgc	ccctgttact	ggttacagaa	gtaaccacca	ctcccaaaaa	360
tggaccagga	ccaacaaaaa	ctaaaactgc	aggtccagat	caaacagaaa	atggactatt	420
gaaggcttgc	agcccacagt	ggaagtatgt	ggntaggngt	ctatgctcag	aatcccaagc	480
cggagaaaag	cagccttctg	gttttagactg	cagtaaccaa	cattgatcgc	cctaaaggac	540
tggn cattca	cttgatggt	ggatgtccaa	ttc			573

<210> 264

<211> 550

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(550)

<223> n = A,T,C or G

<400> 264

tgcagcggcc	gcccgggcag	gtccttgcag	ctctgcagng	tcttcttcac	catcagggtgc	60
agggaaatagc	tcatggattc	catcctcagg	gtcgcagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	ggcctttccc	aagcaatttt	gatggaatcg	acatccacat	cagnaatgc	180
cagtccttta	gggcgatcaa	tgttggttac	tgcagtctga	accagaggct	gactctctcc	240
gcttggtattc	tgagcataga	cactaaccac	atactccact	gtgggctgca	agccttcaat	300
agtcatttct	gtttgatctg	gacctgcagt	tttaagtttt	tgggtgtcct	gnccattttt	360
tgggaagtgg	ggggttactc	tgttaaccagt	aacaggggaa	cttgaaggca	gccacttgac	420
actaatgctg	ttgtcctgaa	catcggtcac	ttgcatctgg	ggatggtttt	gacaatttct	480
ggttcggcaa	attaatggaa	attggcttgc	tgcttggcgg	ggctgnctcc	acgggccagt	540
gacagcatac						550

<210> 265

<211> 596

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(596)

<223> n = A,T,C or G

<400> 265

tcgagcggcc	gcccgggcag	gtccttgca	ctctgcagtg	tcttcttcac	catcagggtgc	60
agggaaatagc	tcatggattc	catcctcagg	gctcgagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	gggctttccc	aagcaatttt	gatggaatcg	acatccacat	cagtgaatgc	180
cagtccttta	ggcgatcaa	tgttggttac	tgcagtcctga	accagaggct	gactctctcc	240
gcttggattc	tgagcataga	cactaaccac	atactccact	gtgggctgca	agccttcaat	300
agtcatttct	gtttgatctg	gacctgcagt	tttaagtttt	tgttggncc	gnnccatttt	360
tggggaaagg	gtggttactc	ttgtaaccag	taacagggga	acttgaagca	gccacttgac	420
actaatgctg	gtggcctgaa	catcggtcac	ttgcactcgg	gatggtttgg	tcaatttctg	480
ttcggttaatt	aatgggaaat	tggcttactg	gcttgcgggg	gctgtctcca	cggncagtga	540
caagcataca	caggngatgg	gtataatcaa	ctccaggttt	aaggccnctg	atggtg	596

<210> 266

<211> 506

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(506)

<223> n = A,T,C or G

<400> 266

agcgtggctg	cggccgaggt	ctgggatgct	cctgctgtca	cagtgagata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tactgtgccc	tgggagcaag	120
tctacagcta	ccatcagcgg	ccttaaaccct	ggagttgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaagc	agtaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aaccatccca	gatgcaagtg	accgatgttc	aggacaacag	cattagtgtc	300
aagtggctgc	cttcaagttc	ccctgttact	ggttacagag	taaccaccac	tcccaaaaat	360
gggaccagga	ccaacaaaaa	actaaaactg	canggtccag	atcaaacaga	aatgactatt	420
gaaggettg	agcccacagt	ggagtatgtg	ggttagtgct	tatgctcaga	atnccaagcg	480
gagagagtca	gcctctggtt	cagact				506

<210> 267

<211> 548

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(548)

<223> n = A,T,C or G

<400> 267

tcgagcggcc	gcccgggcag	gtcagcgctc	tcaggacgtc	accaccatgg	cctgggctct	60
gtcctctctc	accctcctca	ctcagggcac	agggctcttg	gcccagtcctg	ccctgactca	120
gcctccctcc	gcgtccgggt	ctcctggaca	gtcagtcacc	atctcctgca	ctggaaccag	180
cagtgaagtt	ggtgcttatg	aatttgctc	ctggtaccaa	caacaccagg	gcaaggcccc	240
caaactcatg	atttctgagg	tcactaagcg	gccctcaggg	gtccctgatc	gcttctctgg	300
ctccaagtct	ggcaacacgg	cctccctgac	cgtctctggg	ctccangctg	aggatgangc	360
tgattattac	tggaaagctca	tatgcaggca	acaacaattg	ggtgttcggc	ggaagggacc	420
aagctgaccg	tnctaaggctc	aagcccaagg	cttgcccccc	tcggtcactc	tgttcccacc	480

ctcctctgaa gaagctttca agccaacaan gncacactgg gtgtgtctca taagtggact 540
ttctaccc 548

<210> 268

<211> 584

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(584)

<223> n = A,T,C or G

<400> 268

agcgtgggtcg	cggccgaggt	ctgtagcttc	tgtgggactt	ccactgctca	ggcgtcaggc	60
tcaggtagct	gctggccgcg	tacttgttgt	tgctttgntt	ggaggggtgtg	gtggctctcca	120
ctcccgctt	gacggggctg	ctatctgcct	tccaggccac	tgtcacggct	cccgggtaga	180
agtcacttat	gagacacacc	agtgtggcct	tgttggcttg	aagctcctca	gaggaggggtg	240
ggaacagagt	gaccgagggg	gcagccttgg	gctgacctag	gacggtcagc	ttggccctc	300
cgccgaacac	ccaattggtg	ttgcctgcat	atgagctgca	gtaataatca	gcctcatcct	360
cagcctggag	cccagagacn	gtcaaggagg	gcccgtgttt	gccaagactt	ggaagccaga	420
naagcgatca	gggacccctg	agggccgctt	tacngacctc	aaaaaatcat	gaatttgggg	480
ggcctttgcc	tggngtttg	ttggtnacca	gnaaaacaaa	atttcataaa	gcaccaacgt	540
cactgctggt	ttccagtgc	ngaanaatggt	gaactgaant	gtcc		584

<210> 269

<211> 368

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(368)

<223> n = A,T,C or G

<400> 269

agcgtgggtcg	cggccgaggt	ccagcatcag	gagccccgcc	ttgccggctc	tggtcatcgc	60
ctttcttttt	gtggcctgaa	acgatgtcat	caattcgcag	tagcagaact	gcogtctcca	120
ctgctgtctt	ataagtctgc	agcttcacag	ccaatggctc	ccatatgccc	agttccttca	180
tgtccaccaa	agtacccgtc	tcaccattta	cacccaggt	ctcacagttc	tcctgggtgt	240
gcttgggccg	aagggaggta	agtanacgga	tggtgctggt	cccacagttc	tggatcaggg	300
tacgaggaat	gacctctagg	gcctgggcna	caagccctgt	atggacctgc	ccgggcgggc	360
ccgctcga						368

<210> 270

<211> 368

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(368)

<223> n = A,T,C or G

<400> 270

tcgagcggcc	gcccgggag	gtccatacag	ggctgttgcc	caggccctag	aggn cattcc	60
ttgtaccctg	atccagaact	gtgggaccag	caccatccgt	ctacttacct	cccttcgggc	120
caagcacacc	caggagaact	gtgagacctg	gggtgtaaat	ggngagacgg	gtactttggt	180
ggacatgaag	gaactgggca	tatgggagcc	attggctgng	aagctgcana	cttataagac	240
agcagtggag	acggcagttc	tgctactgcg	aattgatgac	atcgtttcag	gccacaaaaa	300
gaaaggcgat	gaccanagcc	ggcaaggcgg	ggcttcctga	tgctggacct	cggccgccga	360
ccacgctt						368

<210> 271

<211> 424

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(424)

<223> n = A,T,C or G

<400> 271

agcgtggtcg	cggccgaggt	ccactagagg	tctgtgtgcc	attgcccagg	cagagtctct	60
gcgttacaaa	ctcctaggag	ggcttgctgt	gcggagggcc	tgctatggtg	tgctgcgggt	120
catcatggag	agtggggcca	aaggctgcga	ggttgtggtg	tctgggaaac	tccgaggaca	180
gagggctaaa	tccatgaagt	ttgtggatgg	cctgatgac	cacagcggag	accctgttaa	240
ctactacgtt	gacactgctg	tgcgccacgt	gttgetcana	caggggtgtg	tgggcatcaa	300
ggtgaagatc	atgctgccct	gggaccanc	tggcaaaaat	ggcccttaaa	aacccttgc	360
cntgaccacg	tgaaccattt	gtgngaacc	caagatgaan	atacttgccc	accaccccc	420
attc						424

<210> 272

<211> 541

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(541)

<223> n = A,T,C or G

<400> 272

tcgagcggcc	gcccgggag	gtctgccaag	gagaccctgt	tatgctgtgg	ggactggctg	60
gggcatggca	ggcggtctg	gcttcccacc	cttctgttct	gagatggggg	tggtgggcag	120
tatctcatct	ttgggttcca	caatgctcac	gtggtcaggc	aggggttct	tagggccaat	180
cttaccagtt	gggtcccagg	gcagcatgat	cttcaccttg	atgccagca	cacctgtct	240
gagcaacacg	tggcgcacag	cagtgtcaac	gtagtagtta	acagggctc	cgctgtggat	300
catcaggcca	tccacaaact	tcatggattt	agccctctgt	cctcggagtt	tccaaaaaca	360
ccacaacctc	gccagccttt	gggccccact	tcttcatgaa	tgaaccgcga	gcacaccatt	420
ancaaggccc	ttccgcacag	gnaagccctt	cctaaggagt	tttgtaaacg	caaaaaactc	480
ttgcctgggg	caaattgggca	cacagacctn	tantnggacc	ttggnccgcg	aaccaccgct	540
t						541

<210> 273

<211> 579

<212> DNA

<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(579)
<223> n = A,T,C or G

<400> 273
agcgtggtcg cgcccgaggt ctggccctcc tggcaaggct ggtgaagatg gtcaccctgg 60
aaaaccggga cgacctggtg agagaggagt tggttgacca cagggtgctc gtggtttccc 120
tggaactcct ggacttcctg gcttcaaagg cattagggga cacaatggc tggaaggatt 180
gaagggacag cccggtgctc ctggtgtgaa ggtggaacct gngcccctg gtgaaaatgg 240
aactccaggt caaacaggag cccgngggct tcctggngag agaggacgtg ttggtgcccc 300
tgggccanac ctgcccgggc ggccgctcna aaagccgaaa tccagnacac tggcgccgn 360
tactantgga atccgaactt cggtacaaa gcttggccgt aatcatggcc atagcttggt 420
ccctgggng gaaattggtg ttccgctncc aattccacac aacataccga acccgaaaag 480
cattaaagtg taaaagccct gggggggcct aaatgangtg agcntaactc ncatttaatt 540
ggcgttgccg ttcactgccc cgcttttcca gtccgggna 579

<210> 274
<211> 330
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(330)
<223> n = A,T,C or G

<400> 274
tcgagcggcc gcccgggcag gtctgggcca ggggcaccaa cacgtcctct ctcaccagga 60
agcccacggg ctctgtttg acctggagtt ccattttcac caggggcacc aggttcaccc 120
ttcacaccag gagaccggg ctgtcccttc aatccatcca gaccattgtg ncccctaatt 180
cctttgaagc caggaagtcc aggagttcca gggaaaccac gagcaccctg tggccaaca 240
actcctctct caccaggtcg tccgggtttt ccagggtgac catcttcacc agccttgcca 300
ggagggccag acctcggccg cgaccacgct 330

<210> 275
<211> 97
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(97)
<223> n = A,T,C or G

<400> 275
ancgtggtcg cgcccgaggt cctcaccaga ggtgncacct acaacatcat agtggaggca 60
ctgaaagacc ancagaggca taaggttcgg gaagagg 97

<210> 276
<211> 610
<212> DNA
<213> Homo sapien

<220>

<221> misc_feature
<222> (1)...(610)
<223> n = A,T,C or G

<400> 276
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt 60
gtagtgcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc 120
aaagcctaag cactggcaca acagttttaa gcctgattca gacattcgtt cccactcatc 180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcacccg taggttggtt 240
caagccttcg ttgacagagt tgtccacggg aacaacctct tcccgaacct tatgcctctg 300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggca cctctggtga ggacctcngn 360
ccngaacaac gcttaagccc gnattctgca gaataatccc atcacacttg gcggccgctt 420
cgancatgca tcntaaaagg ggccccaatt tcccccttat aagngaanc cgtatttncca 480
atttcactgg ncccgccgnt tttaaaacg ncggtgaact ggggaaaaac cctggcggtt 540
acccaacttt aatcgccntt ggcagcacia tcccccttt tcgnccancn tgggcgtaaa 600
taaccgaaaa 610

<210> 277
<211> 38
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(38)
<223> n = A,T,C or G

<400> 277
ancngggtcg cggccgangt nttttttctt nttttttt 38

<210> 278
<211> 443
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(443)
<223> n = A,T,C or G

<400> 278
agcgtggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga 60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa 120
gccgcgggag gagcagtaca acagcacgta ccggngngtc agcgtcctca ccgtcctgca 180
ccagaattgg ttgaatggca aggagtacaa gngcaagggt tccaacaaaag cntcccagc 240
ccccntcgaa aaaaccattt ccaaagccaa agggcagccc cgagaaccac aggtgtacac 300
cctgccccca tcccgggagg aaaagancaa naaccnggtt cagccttaac ttgcttggtc 360
naangctttt tatcccaacg nacttcccc ntggaantgg gaaaaaccaa tgggccaanc 420
cgaaaaaaca ttacaanaac ccc 443

<210> 279
<211> 348
<212> DNA
<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(348)

<223> n = A,T,C or G

<400> 279

tcgagcggcc	gcccgggcag	gtgtcggagt	ccagcacggg	aggcgtggtc	ttgtagttgt	60
tctccggctg	cccattgctc	tcccactcca	cggcgatgtc	gctgggatag	aagcctttga	120
ccaggcaggt	caggctgacc	tggttcttgg	tcattctctc	ccgggatggg	ggcaggggtga	180
acacctgggg	ttctcggggc	ttgccctttg	gttttgaana	tggttttctc	gatgggggct	240
ggaagggctt	tggtgnaaac	cttgcaacttg	actccttgcc	attcaccag	ncctggngca	300
ggacggngag	gacnctnacc	acacggaacc	gggctggtgg	actgctcc		348

<210> 280

<211> 149

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(149)

<223> n = A,T,C or G

<400> 280

agcgtgggtcg	cggacgangt	cctgtcagag	tggnactggt	agaagttcca	ngaaccctga	60
actgtaaggg	ttcttcatca	gtgccaacag	gatgacatga	aatgatgtac	tcagaagnngn	120
cctggaatgg	ggcccatgan	atggttgcc				149

<210> 281

<211> 404

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(404)

<223> n = A,T,C or G

<400> 281

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctgggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtcc	ctcgcccccg	ccctggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagcccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttcaca	ccccaatctt	300
catggaccag	agatcttgga	tgttccttcc	acagttcaaa	agaccccttt	cggcaccccc	360
cctgggtatg	aacctgggaa	aanggnantt	aanctttcct	ggca		404

<210> 282

<211> 507

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(507)

<223> n = A,T,C or G

<400> 282

agcgtggtcg	cggccgaggt	ctgggatgct	cctgctgtca	cagtgaagata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tcactgtgcc	tgggagcaag	120
tctacagcta	ccatcagcgg	ccttaaaccct	ggagttgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaagc	agcaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aaccatccca	gatgcaagtg	accgatgttc	aggacaacag	cattagtgtc	300
aagtggctgc	cttcaaggtn	ccctgggtact	gggttacaga	ntaaccacca	ctccccaaaa	360
tggaccagga	accacaaaaa	cttaaactgc	aggggccaga	tcaaaacaga	aatgactatt	420
gaangcttgc	agccacaggt	gggagtatgn	gggtagtgn	tatgcttcag	aatccaagcg	480
gaaaaangtc	aagccttntg	ggttcaa				507

<210> 283

<211> 325

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(325)

<223> n = A,T,C or G

<400> 283

tcgagcggcc	gcccgggcag	gtccttgca	ctctgcagtg	tcttcttcac	catcagggtgc	60
agggaaatgc	tcattgattc	cattctcagg	gctcgagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	gggctttccc	aagcaatttt	gatgggaatcg	acatccacat	cagtgaatgc	180
cagtccttta	gggcatcaa	tgttggttac	tgcagnctga	accagaggct	gactctctcc	240
gcttgattc	tgagcataga	cactaaccac	atactccact	gtgggctgca	anccttcaat	300
aanncatttc	tgtttgatct	ggacc				325

<210> 284

<211> 331

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(331)

<223> n = A,T,C or G

<400> 284

tcgagcggcc	gcccgggcag	gtctggtggg	gtcctggcac	acgcacatgg	ggngttgnt	60
ctnatccagc	tgcccagccc	ccattggcga	gtttgagaag	gtgtgcagca	atgacaacaa	120
naccttcgac	tcttcttgcc	acttctttgc	cacaaagtgc	accttgagg	gcaccaagaa	180
gggccacaag	ctccacctgg	actacatcgg	gccttgcaaa	tacatcccc	cttgcttgga	240
ctctgagctg	accgaattcc	cccttgcgca	tgcgggactg	gctcaagaac	cgtcctggca	300
cccttgatg	anagggatga	agacacnacc	c			331

<210> 285

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(509)
 <223> n = A,T,C or G

<400> 285
 agcgtggtcg cggccgaggt ctgtcctaca gtccctcagga ctctactccc tcagcagcgt 60
 ggtgaccgtg cccctccagca acttcggcac ccagacctac acctgcaacg tagatcacaa 120
 gccagcaac accaaggtgg acaagagagt tgagcccaaa tcttgtgaca aaactcacac 180
 atgcccaccg tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccg 240
 catccccctt ccaaacctgc ccgggcggcc gctcgaaagc cgaattccag cacactggcg 300
 gccggtacta gtgganccna acttggnanc caacctggng gaantaatgg gcataantg 360
 tttctggggg gaaattggta tccngtttac aattcccnca caacatacga gccggaagca 420
 taaaagngta aaagcctggg ggnngcctan tgaagtgaag ctaaactcac attaattngc 480
 gttgccgctc actggcccgc ttttccagc 509

<210> 286
 <211> 336
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(336)
 <223> n = A,T,C or G

<400> 286
 tcgagcggcc gcccgggcag gtttgggaagg gggatgcggg ggaagaggaa gactgacggt 60
 cccccagga gttcaggtgc tgggcacggg gggcatgtgt gagttttgtc acaagatttg 120
 ggctcaactc tcttgtccac cttggtgttg ctgggcttgt gatctacgtt gcagggtgtag 180
 gtctggngc cgaagtgtgt ggagggcacg gtcaccacgc tgctgaggga gtagagtcc 240
 gaggactgta ngacagacct cggccgngac cagcctaagc cgaattctgc agatatccat 300
 cacactggcg gccgctccga gcatgcattt tagagg 336

<210> 287
 <211> 30
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(30)
 <223> n = A,T,C or G

<400> 287
 agcgtggngc cggacganga caacaacccc 30

<210> 288
 <211> 316
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(316)
 <223> n = A,T,C or G

<400> 288

tcgagcggcc	gcccgggcag	gnccacatcg	gcagggtcgg	agccctggcc	gccatactcg	60
aactggaatc	catcggtcac	gctcttgccg	aaccagacat	gcctcttgtc	cttgggggtc	120
ttgctgatgn	accagttctt	ctgggccaca	ctgggctgag	tggggtacac	gcaggctcra	180
ccagtctcca	tgttgacagaa	gactttgatg	gcatccaggt	tgcagccttg	gttgggggtca	240
atccagtact	ctccactctt	ccagtcagag	tggcacatct	tgaggtcacg	gcagggtgcgg	300
gcgggggttct	tgacct					316

<210> 289

<211> 308

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(308)

<223> n = A,T,C or G

<400> 289

agcgtggtcg	cggccgaggt	ccagccctgga	gataanggtg	aaggtggtgc	ccccggactt	60
ccaggtatag	ctggacctcg	tggtagccct	ggtgagagag	gtgaaactgg	ccctccagga	120
cctgctggtt	tccctggtgc	tccctggacag	aatggtgaac	ctggnggtaa	aggagaaaaga	180
ggggctccgg	ntganaaaag	tgaaggaggc	cctcctgnat	tggcaggggc	cccangactt	240
agaggtggag	ctggcccccc	tggccccgaa	ggaggaaaag	gtgctgctgg	tcctcctggg	300
ccacctgg						308

<210> 290

<211> 324

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(324)

<223> n = A,T,C or G

<400> 290

tcgagcggcc	gcccgggcag	gtctggggcca	ggaggaccaa	taggaccagt	aggacccctt	60
gggccatctt	tccctgggac	accatcagca	cctggaccgc	ctgggttcacc	cttgtcaccc	120
tttggaccag	gacttccaag	acctcctctt	tctccaggca	ttccttgacg	accaggagta	180
ccancagcac	caggtggccc	aggaggacca	gcagcacctt	ttcctccttc	gggaccaggg	240
ggaccagctc	cacctctaag	tcctgggggc	cctgccaatc	caggaggggc	tccttcacct	300
ttctcacccg	gagccctctt	ttct				324

<210> 291

<211> 278

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(278)

<223> n = A,T,C or G

<400> 291

tcgagcggcc	gcccgggcag	gtccaccggg	atattcgggg	gtctggcagg	aatgggagge	60
atccagaacg	agaaggagac	catgcaaagc	ctgaacgacc	gcctggcctc	ttacctggac	120
agagtgagga	gcctggagac	cgacaaccgg	aggctggaga	gcaaaatccg	ggagcacttg	180
gagaagaagg	gaccccaggt	cagagactgg	agccattact	tcaagatcat	cgaggacctg	240
agggtcana	tcttcgcaaa	tactgcngac	aatgcccg			278

<210> 292

<211> 299

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(299)

<223> n = A,T,C or G

<400> 292

atgcgnggtc	gcgggccgang	accanctctg	gtcatactt	gactctaaag	ncntcaccag	60
nanttacggn	cattgccaat	ctgcagaacg	atgcgggcat	tgtccgcant	atttgcgag	120
atctgagccc	tcaggncctc	gatgatcttg	aagtaanggc	tccagtctct	gacctggggt	180
cccttcttct	ccaagtgtc	ccggattttg	ctctccagcc	tccggttctc	ggctctcaag	240
ncttctcact	ctgtccagga	aaagaggcca	ggcgngcgat	cagggtttt	gcatggact	299

<210> 293

<211> 101

<212> DNA

<213> Homo sapien

<400> 293

agcgtgggtc	cggccgaggt	tgtacaagct	tttttttttt	tttttttttt	tttttttttt	60
tttttttttt	tttttttttt	tttttttttt	tttttttttt	t		101

<210> 294

<211> 285

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(285)

<223> n = A,T,C or G

<400> 294

tcgagcggcc	gcccgggcag	gtctgccaac	accaagattg	gccccgcgcg	catccacaca	60
gttngtgtgc	ggggaggtaa	caagaaatac	cgtgccctga	ggntggacgn	ggggaatttc	120
tcctggggct	cagagtgttg	tactcgtaaa	acaaggatca	tcgatgttgt	ctacaatgca	180
tctaataacg	agctggttcg	taccaagacc	ctggtgaaga	attgcatcgt	gtcatngac	240
agcacaccgt	accgacagt	ggtaccgaag	tcccactatg	cncct		285

<210> 295

<211> 216

<212> DNA

<213> Homo sapien

<400> 295

tcgagcggcc	gcccgggcag	gtccaccaca	cccaattcct	tgctgggtatc	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggtc	tcctcccaga	120
gaagtgggtc	ctcgcccccg	ccctgggtgtc	acagaggcta	ctattactgg	cctggaaccg	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaag			216

<210> 296

<211> 414

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(414)

<223> n = A,T,C or G

<400> 296

agcgtgntcn	cggccgagga	tggggaagct	cgncgtgtctt	tttccttcca	atcaggggct	60
nnntcttctg	attattcttc	agggcaanga	cataaattgt	atattcggnt	cccggttcca	120
gnccagtaat	agtagcctct	gtgacaccag	ggcggggccg	agggaccact	tctctgggag	180
gagaccacag	cttctcatac	ttgatgatga	agccggtaat	cctggcacgt	gggcggtgc	240
catgatacca	ccaangaatt	gggtgtgggtg	gacctgcccg	ggcggggccg	tcgaaaancc	300
gaattentgc	aagaatatcc	atcacacttg	ggcggggccg	tcgaaccatg	catcntaaaa	360
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<210> 297

<211> 376

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(376)

<223> n = A,T,C or G

<400> 297

tcgagcggcc	gcccgggcag	gtctcgcggt	cgcaactgggtg	atgctgggtcc	tggtgggtccc	60
cccggccctc	ctggacctcc	tggtccccct	ggtcctccca	gcgctgggtt	cgacttcagc	120
ttcctgcccc	agccacctca	agagaaggct	cacgatgggtg	gccgctacta	ccgggctgat	180
gatgccaatg	tggttcgtga	ccgtgacctc	gaggtggaca	ccacctcaa	gagccttgag	240
ccagcagaat	cgaaaacatt	cggaacccaa	gaagggcaag	cccgcaaaga	aacccgccc	300
gcacctggcc	gngaacctcc	aagaangtgc	ccacntcttg	actgggaaaa	aaagggaaaa	360
ntacttgga	ttggac					376

<210> 298

<211> 357

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(357)

<223> n = A,T,C or G

<400> 298

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agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa    60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgctct tggggttctt    120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtagacgc aggtctcacc    180
agtctccatg ttgcagaaga ctttgatggc atccagggtg cagccttggt tgggggtcaat    240
ccagtactct ccactcttcc agtcagaagt ggcacatctt gaggtcacgg cagggtgcgg    300
gcgggggttct tgcgggctgc cttctctggc tcccggaatg ttctnngaac ttgctgg    357

```

```

<210> 299
<211> 307
<212> DNA
<213> Homo sapien

```

```

<220>
<221> misc_feature
<222> (1)...(307)
<223> n = A,T,C or G

```

```

<400> 299
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct    60
gcgttacaaa ctcttaggag ggcttgctgt gcggagggcc tgctatggtg tgctgcgggt    120
catcatggag agtggggcca aaggctgcga ggttggtggtg tctgggaaac tccgaggaca    180
gagggctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa    240
ctactacgtt gacacttgct tgtgcgccac gtgttgctca nacanggggt ggctgggcat    300
caaggng                                           307

```

```

<210> 300
<211> 351
<212> DNA
<213> Homo sapien

```

```

<400> 300
tcgagcggcc gcccgggcag gtctgccaaag gagaccctgt tatgctgtgg ggaactggctg    60
gggcatggca ggcggctctg gcttcccacc cttctgttct gagatggggg tgggtgggcag    120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat    180
cttaccagtt ggggccagg gcagcatgat cttcaccttg atgccagca caccctgtct    240
gagcaacacg tggcgcacag caagtgtcaa cgtaagtaag ttaacagggt ctccgctgtg    300
gatcatcagg ccatccacaa acttcatgga tttaaccttc tgcctcggga g                                           351

```

```

<210> 301
<211> 330
<212> DNA
<213> Homo sapien

```

```

<400> 301
tcgagcggcc gcccgggcag gtgtttcaga ggttccaagg tccactgtgg aggtcccagg    60
agtgtgtgtg gtgggcacag aggtccgatg ggtgaaacca ttgacataga gactgttctt    120
gtccagggtg taggggccca gctctttgat gccattggcc agttggctca gctcccagta    180
cagccgctct ctgttgagtc cagggctttt ggggtcaaga tgatggatgc agatggcatc    240
cactccagtg gctgctccat cttctctgga cctgagagag gtcagtctgc agccagagta    300
cagagggccca acactggtgt tctttgaata                                           330

```

```

<210> 302
<211> 317
<212> DNA
<213> Homo sapien

```

<220>
 <221> misc_feature
 <222> (1)...(317)
 <223> n = A,T,C or G

<400> 302
 agcgtggtcg cggccgaggt ctgtactggg agctaagcaa actgaccaat gacattgaag 60
 agctggggccc ctacaccctg gacaggaaca gtctctatgt caatggtttc acccatcaga 120
 gctctgtgnc caccaccagc actcctggga cctccacagt ggatttcaga acctcagga 180
 ctccatcctc cctctccagc cccacaatta tggctgctgg ccctctcctg gtaccattca 240
 ccctcaactt caccatcacc aacctgcagt atggggagga catgggtcac cctgntccca 300
 ggaagttcaa caccaca 317

<210> 303
 <211> 283
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(283)
 <223> n = A,T,C or G

<400> 303
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 ggtctggcac cctgagcagt ccagcgagga cttggtctta gttgagcaat ttggctagga 120
 ggatagtatg cagcacggnt ctgagncgtg gggatagctg ccatgaagta acctgaagga 180
 ggtgctggct ggtanggggt gattacaggg ttgggaacag ctcgtaact tgccattctc 240
 tgcatatact ggtagtgag gtgagcctgg ccctcttctt ttg 283

<210> 304
 <211> 72
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(72)
 <223> n = A,T,C or G

<400> 304
 agcgtggtcg cggccgaggt gagccacagg tgaccggggc tgaagctggg gctgctggnc 60
 ctgctgggtcc tg 72

<210> 305
 <211> 245
 <212> DNA
 <213> Homo sapien
 <220>
 <221> misc_feature
 <222> (1)...(245)
 <223> n = A,T,C or G

<400> 305

cagcngctcc	nacggggcct	gnngggaccaa	caacaccgtt	ttcaccctta	ggcccttttg	60
ctcctctttc	tccttttagca	ccaggttgac	cagcagcncc	ancaggacca	gcaaattccat	120
tggggccagc	aggaccgacc	tcaccacgtt	caccagggtt	tccccgagga	ccagcaggac	180
cagcaggacc	agcagcccca	gcttcgcccc	ggtcacctgt	ggctcacctc	ggccgcgacc	240
acgct						245

<210> 306

<211> 246

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(246)

<223> n = A,T,C or G

<400> 306

tcgagcggtc	gcccgggcag	gtccaccggg	atagccgggg	gtctggcagg	aatgggaggc	60
atccagaacg	agaaggagac	catgcaaagc	ctgaacgacc	gcctggcctc	ttacctggac	120
agagtggagg	gcctgggagc	cganaaccgg	aggctggana	gcaaaatccg	ggagcacttg	180
gagaagaagg	gaccccaggt	caagagactg	gagccattac	ttcaagatca	tcgagggacc	240
tggagg						246

<210> 307

<211> 333

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(333)

<223> n = A,T,C or G

<400> 307

agcgnggtcg	cggccgaggt	ccagctctgt	ctcactacttg	actctaaagt	catcagcagc	60
aagacgggca	ttgtcaatct	gcagaacgat	gcgggcattg	tccgcagtat	ttgcgaagat	120
ctgagccctc	aggctcctcg	tgatcttgaa	gtaatggctc	cagtctctga	cctgggggtc	180
cttctttctc	aagtgtctcc	ggattttgct	ctccagcctc	cggttctcgg	tctccagggt	240
cctcactctg	tccaggtaag	aaggcccagg	cggtcgttca	ggctttgcat	ggtctccttc	300
tcgtttctga	tgccctccat	tcctgccaga	ccc			333

<210> 308

<211> 310

<212> DNA

<213> Homo sapien

<400> 308

tcgagcggcc	gcccgggcag	gtcaggaagc	acattgggtc	tagagccact	gcctcctgga	60
ttccacctgt	gctgcggaca	tctccaggga	gtgcagaagg	gaagcaggtc	aaactgctca	120
gatcagtcag	actggctgtt	ctcagttctc	acctgagcaa	ggtcagtctg	cagccagagt	180
acagagggcc	aacctgggtg	ttcttgaaca	agggcttgag	cagaccctgc	agaaccctct	240
tccgtgggtg	tgaacttcct	ggaaaccagg	gtgttgcatg	tttttctca	taatgcaagg	300
ttggtgatgg						310

<210> 309
<211> 429
<212> DNA
<213> Homo sapien

<400> 309
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa 60
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gctgatgtac cagttcttct gggccacact gggctgagtg gggtaacacc caggtctcac 180
cagttctccat gttgcagaag actttgatgg catccaggtt gcagccttgg ttgggggtcaa 240
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cgggcccgggg gttcttgccg cttgccctct gggctccgga tgttctcgat ctgcttggt 360
caggctcttg agggtggggtg tccacctcga ggtcacggtc accgaaacct gcccgggcgg 420
cccgctcga 429

<210> 310
<211> 430
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(430)
<223> n = A,T,C or G

<400> 310
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cgcacctgcc gtgacctcaa gatgtgccac tctgactgga agagtggaga gtactggatt 180
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ccagtttcga gtattggcgg ccagggtctc ccgacccttg ccgatgtgga cctcgccgcg 420
gaccaccgct 430

<210> 311
<211> 2996
<212> DNA
<213> Homo sapien

<400> 311
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cctacacctt ggacaggagc agtctctatg tcaatggttt cacacagcgg agctctgtgc 180
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aatttccaca ttgtcaactg gaacctcagt aatccagacc ccacatcctc agagtacatc    2040
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gatctgcaat gactggaact tgccggtgcc tgggggtgct tccccccagc cagggtccaa    2940
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<210> 312

<211> 914

<212> PRT

<213> Homo sapien

<400> 312

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Met Ser Met Val Ser His Ser Gly Ala Leu Cys Pro Pro Leu Ala Phe
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Leu Gly Pro Pro Gln Trp Thr Trp Glu His Leu Gly Leu Gln Phe Leu
 20              25              30
Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
 35              40              45
Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
 50              55              60
Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
 65              70              75              80
Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
              85              90              95

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Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
 100 105 110
 Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
 115 120 125
 Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
 130 135 140
 Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
 145 150 155 160
 His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val
 165 170 175
 Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala
 180 185 190
 Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn
 195 200 205
 Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr
 210 215 220
 Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr
 225 230 235 240
 Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro
 245 250 255
 Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg
 260 265 270
 Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu
 275 280 285
 Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu
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 Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val
 305 310 315 320
 Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn
 325 330 335
 Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly
 340 345 350
 Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser
 355 360 365
 Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg
 370 375 380
 Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp
 385 390 395 400
 Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile
 405 410 415
 Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg
 420 425 430
 Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr
 435 440 445
 Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr
 450 455 460
 Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
 465 470 475 480
 Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
 485 490 495
 Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
 500 505 510
 Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
 515 520 525
 Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly

530		535		540
Ala Ala Thr Gly Val	Asp Thr Thr Cys Thr Tyr	His Pro Asp Pro Val		
545	550	555	560	
Gly Pro Gly Leu Asp	Ile Gln Gln Leu Tyr Trp	Glu Leu Ser Gln Leu		
	565	570	575	
Thr His Gly Val Thr	Gln Leu Gly Phe Tyr Val	Leu Asp Arg Asp Ser		
	580	585	590	
Leu Phe Ile Asn Gly Tyr	Ala Pro Gln Asn Leu Ser	Ile Arg Gly Glu		
	595	600	605	
Tyr Gln Ile Asn Phe His	Ile Val Asn Trp Asn Leu	Ser Asn Pro Asp		
	610	615	620	
Pro Thr Ser Ser Glu Tyr	Ile Thr Leu Leu Arg Asp	Ile Gln Asp Lys		
625	630	635	640	
Val Thr Thr Leu Tyr Lys	Gly Ser Gln Leu His Asp	Thr Phe Arg Phe		
	645	650	655	
Cys Leu Val Thr Asn Leu	Thr Met Asp Ser Val	Leu Val Thr Val Lys		
	660	665	670	
Ala Leu Phe Ser Ser Asn	Leu Asp Pro Ser Leu	Val Glu Gln Val Phe		
	675	680	685	
Leu Asp Lys Thr Leu Asn	Ala Ser Phe His Trp	Leu Gly Ser Thr Tyr		
	690	695	700	
Gln Leu Val Asp Ile His	Val Thr Glu Met Glu	Ser Ser Val Tyr Gln		
705	710	715	720	
Pro Thr Ser Ser Ser Ser	Thr Gln His Phe Tyr	Leu Asn Phe Thr Ile		
	725	730	735	
Thr Asn Leu Pro Tyr Ser	Gln Asp Lys Ala Gln	Pro Gly Thr Thr Asn		
	740	745	750	
Tyr Gln Arg Asn Lys Arg	Asn Ile Glu Asp Ala	Leu Asn Gln Leu Phe		
	755	760	765	
Arg Asn Ser Ser Ile Lys	Ser Tyr Phe Ser Asp	Cys Gln Val Ser Thr		
	770	775	780	
Phe Arg Ser Val Pro Asn	Arg His His Thr Gly	Val Asp Ser Leu Cys		
785	790	795	800	
Asn Phe Ser Pro Leu Ala	Arg Arg Val Asp Arg	Val Ala Ile Tyr Glu		
	805	810	815	
Glu Phe Leu Arg Met Thr	Arg Asn Gly Thr Gln	Leu Gln Asn Phe Thr		
	820	825	830	
Leu Asp Arg Ser Ser Val	Leu Val Asp Gly Tyr	Phe Pro Asn Arg Asn		
	835	840	845	
Glu Pro Leu Thr Gly Asn	Ser Asp Leu Pro Phe	Trp Ala Val Ile Leu		
	850	855	860	
Ile Gly Leu Ala Gly Leu	Leu Gly Leu Ile Thr	Cys Leu Ile Cys Gly		
865	870	875	880	
Val Leu Val Thr Thr Arg	Arg Arg Lys Lys Glu	Gly Glu Tyr Asn Val		
	885	890	895	
Gln Gln Gln Cys Pro Gly	Tyr Tyr Gln Ser His	Leu Asp Leu Glu Asp		
	900	905	910	
Leu Gln				

<210> 313

<211> 656

<212> DNA

<213> Homo sapiens

<400> 313

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tgatcctgtc tgcggtccac atccaacctt ttgacattat ctgagatttt gtcttcagtg 360
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agaggccgtt aggcaggcac cccctattcc tgctcccca actggatcag gtagaacaac 600
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<210> 314

<211> 519

<212> DNA

<213> Homo sapiens

<400> 314

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gtcactttgc aggggttggg gaagctgctc ccatccatgt acagctccca gtctactgat 120
gtttaaggat ggtctcggtg gttaggccca ctagaataaa ctgagtccaa tacctctaca 180
cagttatgtt taactgggct ctctgacacc gggaggaagg tggcggggtt taggtgttgc 240
aaacttcaat ggttatgctg ggatgttcac agagcaagct ttggtatcta gctagtctag 300
cattcattag ctaatggtgt cctttgggtat ttattaaaa caccacagca tagggggact 360
ttatgttttag gttttgtcta agagttagct tatctgcttc ttgtgctaac agggctattg 420
ctaccaggga ctttgacat gggggccagc gtttgaaac ctcactagt ttttttgaga 480
gataggccac tggcettgga cctcgccgc gaccacgct 519
```

<210> 315

<211> 441

<212> DNA

<213> Homo sapiens

<400> 315

```
cacagagcgt ttattgacac caccactcct gaaaattggg atttcttatt aggttcccct 60
aaaagttccc atgttgatta catgtaaata gtcacatata tacaatgaag gcagtttctt 120
cagaggcaac cagggtttat agtgctaggt aaatgtcatc tcttttgtgc tactgactca 180
ttgtcaaacg tctctgcact gttttcagcc tctccacgtt gcctctgtcc tgcttcttag 240
ttccttcttt gtgacaaacc aaaagaataa gaggatttag aacaggactg cttttcccct 300
atgatttaaa aattccaatg actttcgccc ttgggagaaa tttccaagga aatctctctc 360
gctcgctctc tccgttttcc tttgtgagct tctgggggag ggttagtggt gactttttga 420
tacgaaaaaa tgcattttgt g 441
```

<210> 316

<211> 247

<212> DNA

<213> Homo sapiens

<400> 316

```
tggcgcggt gctggatttc accttcttgc acctgccggt gagcgcttg ggtctaaagg 60
ggcgggatac tccattatgg cccctcgccc tgtagggctg gaatagttag aaaaggcaac 120
ccagtctagc ttggtaagaa gagagacatg cccccaacct cggcgccctt tttcctcacg 180
atctgctgtc cttacttcag cgactgcagg agcttcacct gcaagaaaac agcattgagc 240
tgctgac 247
```

<210> 317
<211> 409
<212> DNA
<213> Homo sapiens

<400> 317
tgacagggct cctggagttg ttaagtcacc aagtagctgc aggggatgga cactgcccc 60
cacgatgtgg gatgaacagc agccttggtt tgtagcccag ggtgtccatg gatttgaccc 120
gaatgctccc tggaggccct gtggcgagga caggcactgg atgggtccaga ccctctggct 180
ggaggagtgg tggagccagg actgggcctt cagccatgag ggctagaata acctgacctc 240
ttgcattcta acactgggtc attaatgaca cctttccagt ggatgttgca aaaaccaaca 300
ctgtcaggaa cctggccctg ggaggggctca ggtgagctca caaggagagg tcaagccaag 360
ccaaagggtg ggkaacacac aacaccaggg gaaaccagcc cccaaacca 409

<210> 318
<211> 320
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(320)
<223> n = A,T,C or G

<400> 318
caaggnagat cttaagnngg gtcntatgta agtgtgctcc tgggtccagg gttcctggag 60
cctcacgagg tcaggggaac ccttgtagaa ctccaccagc agcatcatct cgtgaaggat 120
gtcattggtc aggaagctgt cctggacgta ggccatctcc acatccatgg ggatgccata 180
gtcactgggc ctttgctcgg gagggagcat caccagaaa ggcgagatct tggactcggg 240
gcctgggttg ccagaatagt aaggggagca nagcagggcg aggcagggct ggaagccatt 300
gctggagccc tgcagccgca 320

<210> 319
<211> 212
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(212)
<223> n = A,T,C or G

<400> 319
tgaagcaata gcgcccccat tttacaggcg gagcatggaa gccagagagg tgggtggggg 60
agggggtcct tccctggctc aggcagatgg gaagatgagg aagccgctga agacgctgtc 120
ggcctcagag ccctggtaaa tgtgaccctt tttggggtct ttttcaacct anacctgtgc 180
accctgctgc agacctcggc cgcgaccacg ct 212

<210> 320
<211> 769
<212> DNA
<213> Homo sapiens

<400> 320

```

tggaggtgta gcagtgagag gagatytcat gcaagagtgt cacagcagag ccctaaascc 60
tccaactcac cagtgagaga tgagactgcc cagtactcag ccttcatctc ctgggccacc 120
tggagggcgt ctttctccat cagcgcatat tgagcagggg tactcagatc cttcttgga 180
cctacaagga agagaagcac actggaaggg tcatttctct tcagggcatc ggccagccac 240
tgccctgccat gggaggtgga aagtaaggga tgagtgaagc tgcagggccc ctccactga 300
cattcatagg cccaattacc ccctctctgg tcctacatgc attcttcttc ttctgacca 360
cccctctgtt ctgaaccctc tcttcccgga gcctccatt atattgcagg atgctcactt 420
acttggtatg ttccagagat gccacatcat tcaggttgaa gacaatgatg atggcttgga 480
agagtggcag aaacagcccc aggttgacag ggaagacact actgctcatt tccccaatcc 540
ttccagctcc atatgagaaa gccatgtgca ctctgagacc cacctacccc acttcaccca 600
gccccctacc ttgagctcct ctatagtagg ttgatgcaat gcatttgaa ctctcctgcc 660
cagcgtatc ccaactggaa ggaaggaaga gtgaagcaca ggtatgtatc ttggggggtg 720
tgggtgctgg ggagaaggga tagctggaag ggtgtgga 769

```

<210> 321

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(690)

<223> n = A,T,C or G

<400> 321

```

tgggctgtgg gcggcacctg tgctctgcag gccagacagc gatagaagcc tttgtctgtg 60
cctactcccc cggaggcaac tgggaggtca acgggaagac aatcatcccc tataagaagg 120
gtgcctggtg ttgcgtctgc acagccagtg tctcaggctg cttcaaagcc tgggaccatg 180
cagggggggt ctgtgaggtc cccaggaatc cttgtcgcat gagctgccag aaccatggac 240
gtctcaacat cagcacctgc cactgccact gtccccctgg ctacacgggc agatactgcc 300
aagtgaggtg cagcctgcag tgtgtgcacg gccggttcgg ggaggaggag tgctcgtgcg 360
tctgtgacat cggctacggg ggagcccagt gtgccaccaa ggtgcatttt ccttccaca 420
cctgtgacct gaggatcgac ggagactgct tcatggtgtc ttcagaggca gacacctatt 480
acagaagcca ggatgaaatg tcagaggaat ggccgggtgc tggcccagat caagagccag 540
aaagtgcagg acatcctcgc cttctatctg ggccgcctgg agaccaccaa cgaggtgact 600
gacagtgaat ttgagaccag gaacttctgg atnngggtca cctacaagac cgccaaggac 660
tccttncgct gggccacagg ggagcaccag 690

```

<210> 322

<211> 104

<212> DNA

<213> Homo sapiens

<400> 322

```

gtcgcaagcc ggagcaccac catgtagcct ttcccgaagt accggacctt ctctcctcc 60
acgtcacat cagggacatc atggagcagg accaccacct ggtc 104

```

<210> 323

<211> 118

<212> DNA

<213> Homo sapiens

<400> 323

```

gggccctggg cgcttccaaa tgacccagga ggtggtctgc gacgaatgcc ctaatgtcaa 60
actagtgaat gaagaacgaa cactggaagt agaaatagag cctggggtga gagacgga 118

```

<210> 324
<211> 354
<212> DNA
<213> Homo sapiens

<400> 324
tgctctccgg gagcttgaag aagaaactgg ctacaaaggg gacattgccg aatgtttctcc 60
agcgggtctgt atggacccag gcttgtcaaa ctgtactata cacatcgtga cagtcacccat 120
taacggagat gatgccgaaa acgcaaggcc gaagccaaag ccaggggatg gagagtttgt 180
ggaagtcatt tctttaccca agaatgacct gctgcagaga cttgatgctc tggtagctga 240
agaacatctc acagtggacg ccaggggtcta ttcctacgct ctagcgctga aacatgcaaa 300
tgcaaagcca tttgaagtgc ccttcttgaa attttaagcc caaatatgac actg 354

<210> 325
<211> 642
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(642)
<223> n = A,T,C or G

<400> 325
ncatgcttga atgggctcct ggtgagagat tgccccctgg tgggtgaaaca atcgtgtgtg 60
cccactgata ccaagaccaa tgaaagagac acagttaagc agcaatccat ctcatattcca 120
ggcacttcaa taggtcgctg attggctcct gcaccagcag tggtagtcgt acctatttca 180
gagaggtctg aaattcagggt tcttagtttg ccagggacag gccctacctt atattttttt 240
ccatcttcat catccacttc tgcttacagt ttgctgctta caataactta atgatggatt 300
gagttatctg ggtgggtctct agccatctgg gcagtgtggt tctgtctaac caaagggcat 360
tggcctcaaa ccctgcattt ggtttagggg ctaacagagc tcctcagata atcttcacac 420
acatgtaact gctggagatc ttattctatt atgaataaga aacgagaagt ttttccaaag 480
tgttagtcag gatctgaagg ctgtcattca gataaccag cttttccttt tggcttttag 540
cccattcaga ctttgccaga gtcaagccaa ggattgcttt tttgctacag ttttctgcca 600
aatggcctag ttcttgagta cctggaaacc agagagaaag ag 642

<210> 326
<211> 455
<212> DNA
<213> Homo sapiens

<400> 326
tccgtgagga tgagcttcga gtccttcacc aggcaactgca ggggcacagt cacgtcaatc 60
accttcacct tctcgctctt cctgctcttg tcattgacaa acttcccgtg ccaggcattg 120
acgatgatga ggcccattct ggactcttct gcctcaatta tccttcggac agattcctgc 180
atcagccgga cagcggactc cgctcttgct ttcttctgca gcacatcggg ggcggcgctt 240
tccctctgct tctccaattc cttctctttc tgagccctga ggtatggttt gatgatcaga 300
cggtgcatgg caaagtagac cactagaggc cccacggtgg catagaacat ggcgctgggc 360
agaagctggg ccgtcaagtg aataggggaag aagtatgtct gactggccct gttgagcttg 420
actttgagag aaacgccttg tggaaactcca acgct 455

<210> 327
<211> 321
<212> DNA

<213> Homo sapiens

<400> 327

```
ttcactgtga actcgagtc ctcgatgaac tcgcacagat gtgacagccc tgtctccttg 60
ctctctgagt tctcttcaat gatgctgatg atgcagtcca cgatagcgcg cttataactca 120
aagccaccct cttcccgag catggtgaac aggaagttca taaggacggc gtgtttgcga 180
ggatatttct gacacagggc actgatggcc tggacaacca ccaccttgaa ttcacccgag 240
atttctgaca tgaaggagga gatctgcttc atgaggcggt cgatgctgct ctcgctgccc 300
gtcttaagga ggggtggtgat g                                     321
```

<210> 328

<211> 476

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(476)

<223> n = A,T,C or G

<400> 328

```
tgcaggaggg gccatggggg ctgtgaatgg gatgcagccc catggtgtcc ctgataaatc 60
cagtgtgcag tctgatgaag tctgggtggg tgtggtctac gggtggcag ctaccatgat 120
ccaagaggta atgcactcct tttcccctct ctccaccatc tgtatcctgg ccmagaaaaa 180
cttcccttca aaccaaccaa aatttccttt caaaggcata acccaaatgc catccttggg 240
ccggtctaataaagcctccc ccatttttcc cctggtatgc attcccaggc tccctggcct 300
tncaggggctt nctgtctgtg ggtcatagtt tatctcctcc cacttgetgg gagctccttg 360
aaggcaaaaga ctctactgcc tccatctatc cagtggaaat ggctcttcag aggggtgcaa 420
gttagtatgt atgactgtca tctctcccaa cagggcctga cttggsaggg ctcca 476
```

<210> 329

<211> 340

<212> DNA

<213> Homo sapiens

<400> 329

```
cgagggagat tgccagcacc ctgatggaga gtgagatgat ggagatcttg tcagtgctag 60
ctaagggtga ccacagccct gtcacaaggg ctgctgcagc ctgcctggac aaagcagtgg 120
aatatgggct tatccaaccc aaccaagatg gagagtgagg gggttgctcc tgggcccag 180
gctcatgcac acgctaccta ttgtggcacg gagagtaagg acggaagcag ctttggctgg 240
tggtggctgg catgcccatt actcttgccc atcctcgctt gctgccctag gatgtcctct 300
gttctgagtc agcgggccacg ttcagtcaca cagccctgct 340
```

<210> 330

<211> 277

<212> DNA

<213> Homo sapiens

<400> 330

```
tgtcaccatc acattggtgc caaataccca gaagacatcg tagatgaaga gtccgcccag 60
caggatgcag ccagtgtgta cattgttgag gtgcaggagc tctactccat taaggagaaa 120
ggccaggcca aaaaggttgt tggcaatcca gtgttcttc agcaggtacc agacgccaac 180
gatgtgtgct agggccaggc acaccaggtc cttggtgtca aattcataat tgatgatctc 240
ctccttgttt tcccagaacc ctgtgtgaag agcagac 277
```

<210> 331
<211> 136
<212> DNA
<213> Homo sapiens

<400> 331
ttgcttccca cctcctttct ctgtcctctc ctgaggttct gccttacaat ggggacactg 60
atacaaacca cacacacaat gaggatgaaa acagataaca ggtaaaatga cctcacctgc 120
ccgggcggcc gctcga 136

<210> 332
<211> 184
<212> DNA
<213> Homo sapiens

<400> 332
ttgtgagata aacgcagata ctgcaatgca ttaaaacgct tgaaatactc atcagggatg 60
ttgtgatctt tattgttgct taagtagaga gttagaagag agacagggag accagaaggc 120
agtctggcta tctgattgaa gctcaagtca aggtattcga gtgatttaag acctttaaaa 180
gcag 184

<210> 333
<211> 384
<212> DNA
<213> Homo sapiens

<400> 333
cggaaaactt cgaggaattg ctcaaagtgc tgggggtgaa tgtgatgctg aggaagattg 60
ctgtggctgc agcgtccaag ccagcagtgg agatcaaaca ggagggagac actttctaca 120
tcaaaacctc caccaccgtg cgcaccacag agattaactt caagggtggg gaggagtttg 180
aggagcagac tgtggatggg aggccctgta agagcctggt gaaatgggag agtgagaata 240
aaatggctctg tgagcagaag ctcttgaagg gagagggccc caagacctcg tggaccagag 300
aactgaccaa cgatggggaa ctgatcctga ccatgacggc ggatgacgtt gtgtgcacca 360
gggtctacgt ccgagagtga gcgg 384

<210> 334
<211> 169
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(169)
<223> n = A,T,C or G

<400> 334
cnacaaacag agcagacacc ctggatccgg tcttgctact ggccaggacg gctggaccgt 60
aaaattgaat ttccacttcc tgaccgccgc cagaagagat tgattttctc cactatcact 120
agcaagatga acctctctga ggaggttgac ttggaagact atgtngccc 169

<210> 335
<211> 185
<212> DNA
<213> Homo sapiens

<400> 335
 ccagggtttgc agcccaggct gcacatcagg ggactgcctc gcaatacttc atgctgttgc 60
 tgctgactga tgggtgctgtg acggatgtgg aagccacacg tgaggctgtg gtgcgtgcct 120
 cgaacctgcc catgtcagtg atcattgtgg gtgtgggtgg tgctgacttt gaggccatgg 180
 agcag 185

<210> 336
 <211> 358
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(358)
 <223> n = A,T,C or G

<400> 336
 ctgcccctgc cttacggcgg ccaganacac acccaggatg gcattggccc caaacttgga 60
 tttgttctca gtcccatcca actccagcat cagggtgtcc agtttctctt gtcaccacac 120
 agagagacct gagctgatga gggctggcgc gatgggtggag ttgatgtggc cactgcctt 180
 caggacacct ttgcctaagt aacgctgttt gtctccatcc ctcagctcca gggcctcata 240
 gatgcccgta gaggctccac tgggcactgc agcccgaaa agacctttgg cagtatagag 300
 atccacctcc actgtggggt tcccgcgga gtccaggatc tcccgggccc agatcttc 358

<210> 337
 <211> 271
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(271)
 <223> n = A,T,C or G

<400> 337
 cacaaagcca ccagccnggg aaatcagaat ttacttgatg caactgactt gtaatagcca 60
 gaaatcctgc ccagcatggg attcagaacc tggctctgaa ccaaatccac cgtcaaagtt 120
 catacaggat aaaacaaatt caattgcctt ttccacatta atagcatcaa gcttcccaaa 180
 caaagccaaa gttgccaccg cacaaaaaga gaatcttggt tcaatttctc cctactttat 240
 aaaagtagat ttttcacatc ccatgaagca g 271

<210> 338
 <211> 326
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (1)...(326)
 <223> n = A,T,C or G

<400> 338
 ctgtgctccc gactngnnc tctcaggtac caccgactgc actgggcggg gccctctggg 60
 gggaaaggct ccacggggca gggatacatc tcgaggccag tcactctctg gaggcagccc 120
 aatcaggtca aagattttgc ccaactggtc ggcttcagag tttccacaga agagaggctt 180

<210> 346
<211> 370
<212> DNA
<213> Homo sapiens

<400> 346
ctgctccagg gcggtggtgtg ccttcgtggc ctctgcctcc tccgaggagc caggctgtgt 60
tctcttcaga atgttctgga gcagcagttt gaggcgggtg atgcgttgga agggcagaat 120
cagaaaggac ttgagggaaa ggcgctggca gacggggtcg ctctccagct tctccaagac 180
ctcccggaaa ttgctgttgc tattcatcag gctctggaag gtgcgttcct gataggctctg 240
gttggtgaca taaggcaggt agaccggcg gaagtctggg gcgtggttca ggactacgtc 300
acatacttgg aaggagaaga tattgttctc aaagtctctc tccaggtctg aaaggaacgt 360
ggcgctgacg 370

<210> 347
<211> 416
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(416)
<223> n = A,T,C or G

<400> 347
ctgttgtgct gtgtatggac gtgggcttta ccatgagtaa ctccattcct ggtatagaat 60
ccccatttga acaagcaaag aaggtgataa ccatgtttgt acagcgacag gtgtttgctg 120
agaacaagga tgagattgct ttagtcctgt ttggtacaga tggcactgac aatccccctt 180
ctggtgggga tcagtatcag aacatcacag tgcacagaca tctgatgcta ccagattttg 240
atgtgctgga ggacattgaa agcaaaatcc aaccagggtc tcaacaggct gacttcctgg 300
atgcactaat cgtgagcatg gatgtgattc aacatgaaac aataggaaaag aagtttgag 360
aagaggcata ttgaaatatt cactgacctc aagcagcccg attcagcaaa agtcan 416

<210> 348
<211> 351
<212> DNA
<213> Homo sapiens

<400> 348
gtacaggaga ggatggcagg tgcagagcgg gcactgagct ctgcagggtga aagggtcgg 60
cagttggatg ctctcctgga ggctctgaaa ttgaaacggg caggaaatag tctggcagcc 120
tctacagcag aagaaacggc aggcagtgcc cagggacgag caggagacag atgccttcct 180
cttgtctcaa ctgcaaagag gcgttccttc ctctttcact aatcctcctc agcacagacc 240
ctttacgggt gtcaggctgg gggacagtaa ggtctttccc ttcccacaag gccatatctc 300
aggctgtctc agtgggggga aaccttggaac aatacccggt ctttcttggg c 351

<210> 349
<211> 207
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(207)
<223> n = A,T,C or G

<400> 349

```

nccgggacat ctccaccctc aacagtggca agaagagcct ggagactgaa cacaaggcct 60
tgaccagtga gattgcactg ctgcagtcca ggctgaagac agagggctct gatctgtgcg 120
acagagtgag cgaaatgcag aagctggatg cacaggtcaa ggagctggtg ctgaagtcgg 180
cgggtggaggc tgagcgcctg gtggctg

```

207

<210> 350

<211> 323

<212> DNA

<213> Homo sapiens

<400> 350

```

ccatacaggg ctgttgccca ggccttagag gtcattcctc gtaccctgat ccagaactgt 60
ggggccagca ccatcgtct acttacctcc ctccgggcca agcacacca ggagaactgt 120
gagacctggg gtgtaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180
tgggagccat tggctgtgaa gctgcagact tataagacag cagtggagac ggcagttctg 240
ctactgcgaa ttgatgacat cgtttcaggc cacgaaaaga aaggcgatga ccagagccgg 300
caaggcgggg ctctgatgc tgg

```

323

<210> 351

<211> 353

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(353)

<223> n = A,T,C or G

<400> 351

```

cgccgcatec cntggctcct tccantccct tttcctttnt cngggaacgt gtatgcgggtt 60
tgtttttggt ttgtagggtt tttttccttc tccacctctc cctgtctctt ttgtcccatg 120
ttgtccgttt ctgtgggggt aggtttatgt ttttaatcat ctgaggtcac gtctatttcc 180
tccggactcg cctgcttggt ggcgattctc caccggttaa tatgggtcgt cccttttttc 240
ttttgttgcg aatctgagcc ttcttcctcc agcttctgcc ttttgaactt tgttcttcgg 300
ttctgaaacc atacttttac ctgagtttcc gtgaggctga ggctgtgtgc caa 353

```

<210> 352

<211> 467

<212> DNA

<213> Homo sapiens

<400> 352

```

ctgcccacac tgatcacttg cgagatgtcc ttaggggtaca agaacaggaa ttgaagtctg 60
aatttgagca gaacctgtct gagaaactct ctgaacaaga attacaattt cgtcgtctca 120
gtcaagagca agttgacaac tttactctgg atataaatac tgcctatgcc agactcagag 180
gaatcgaaca ggctgttcag agccatgcag ttgctgaaga ggaagccaga aaagcccacc 240
aactctggct ttcagtggag gcattaaagt acagcatgaa gacctcatct gcagaaacac 300
ctactatccc gctgggtagt gcagttgagg ccatcaaagc caactgttct gataatgaat 360
tcacccaagc ttttaaccgca gctatccctc cagagtcctt gacccgtggg gtgtacagtg 420
aagagaccct tagagcccgt ttctatgctg ttcaaaaact ggcccga 467

```

<210> 353

<211> 350

<212> DNA

<213> Homo sapiens

<400> 353

```
ctgctgcagc cacagtagtt cctcccatgg tgggtggccc tcttggtcct gctggcccag 60
gaaatctgtc cccaccagga acagcccctg gaaaacggcc ccgtcctcta ccaccttggt 120
gaaatgctgc acgggaactg cctcctggag gaccagcttt accttcccca gacatttgtc 180
ctgatttgtt agttttcctg gactgcattt caaattgact caggaactgt ttattgcatg 240
gagttacaac aggattctga ccatgaagtt ctcttttagg taacagatcc attaaacttt 300
ttgaagatgc ttcagatcca acaccaacaa gggcaaacc ctttgactgg 350
```

<210> 354

<211> 351

<212> DNA

<213> Homo sapiens

<400> 354

```
athtagatga gatctgaggc atggagacat ggagacagta tacagactcc tagattttaag 60
ttttaggttt tttgcttttc taatcaccaa ttcttatata caatgtatat tttagactcg 120
agcagatgat catcttcac ttaagtcatt ccttttgact gagtatggca ggattagagg 180
gaatggcagt atagatcaat gtctttttct gtaaagtata ggaaaaacca gagaggaaaa 240
aaagagctga caattggaag gtagtagaaa attgacgata atttcttctt aacaaataat 300
agttgtatat acaaggaggc tagtcaacca gattttattt gttgagggcg a 351
```

<210> 355

<211> 308

<212> DNA

<213> Homo sapiens

<400> 355

```
ttttggcgca agttttacag attttattaa agtcgaagct attggtcttg gaagatgaaa 60
atgcaaatgt tgatgagggtg gaattgaagc cagatacctt aataaaaatta tatcttggtt 120
ataaaaaataa gaaattaagg gttaacatca atgtgccaat gaaaaccgaa cagaagcagg 180
aacaagaaac cacacacaaa aacatcgagg aagaccgcaa actactgatt caggcggcca 240
tcgtgagaat catgaagatg aggaagggtc tgaaacacca gcagttactt ggcgagggtcc 300
tcactcag 308
```

<210> 356

<211> 207

<212> DNA

<213> Homo sapiens

<400> 356

```
ctgtcccaag tgctccaga aggcaggatt ctgaagacca ctccagcgat atgttcaact 60
atgaagaata ctgcaccgcc aacgcagtc ctgggccttg ccgtgcatcc ttcccacgct 120
ggtactttga cgtggagagg aactcctgca ataacttcat ctatggaggc tgccggggca 180
ataagaacag ctaccgctct gaggagg 207
```

<210> 357

<211> 188

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(188)

<223> n = A,T,C or G

<400> 357

```
tcgaccacgc cctcgtagcg catgngctnc aggacgatgc tcagagtgat gaacacccccg 60
gtgcggccca cgccagcact gcagtgcacc gtgataggcc catcctgtcc aaactgctcc 120
ttggtcttat gcacctgccc gatgaagtca atgaatccct cgctgtctt gggcacgccc 180
tgctctgg                                     188
```

<210> 358

<211> 291

<212> DNA

<213> Homo sapiens

<400> 358

```
ctgggagcat cggcaagcta ctgccttaaa atccgatctc cccgagtgca caatttctgt 60
cccttttaag ggttcacaac actaaagatt tcacatgaaa gggtttgtgat tgatttgagc 120
aggcaggcgg tacgtgacag gggctgcatg caccggtggt cagagagaaa cagaacaggg 180
cagggaattt cacaatgttc ttctatacaa tggctggaat ctatgaataa catcagtttc 240
taagttatgg gttgattttt aactactggg tttaggccag gcaggcccag g 291
```

<210> 359

<211> 117

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(117)

<223> n = A,T,C or G

<400> 359

```
gccaccacac tccagcctgg gcaatacagc aagactgtct caaaaaaaaaa aaaaaaaaaa 60
ccccaaaaaa ctcaaaaang taatgaatga tacccaangn gccttttcta gaaaaag 117
```

<210> 360

<211> 394

<212> DNA

<213> Homo sapiens

<400> 360

```
ctgttcctct ggggtggtcc agttctagag tgggagaaag ggagtcaggc gcattgggaa 60
tcgtgggtcc agtctggttg cagaatctgc acatttgcca agaaattttc cctgtttgga 120
aagtttgccc cagctttccc gggcacacca cttttgtcc caagtgtctg ccggtcgacc 180
aatctgcctg ccacacattg accaagccag acccggttca cccagctcga ggatcccagg 240
ttgaagagtg gccccttgag gccctggaaa gaccaatcac tggacttctt cccttgagag 300
tcagaggtca cccgtgattc tgctgcacc ttatcattga tctgcagtga tttctgcaaa 360
tcaagagaaa ctctgcaggg cactcccctg tttc 394
```

<210> 361

<211> 394

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature
<222> (1)...(394)
<223> n = A,T,C or G

<400> 361
ctgggcggat agcaccgggc atattttntt natggatgag gtctggcacc ctgagcagtc 60
cagcgaggac ttggtcttag ttgagcaatt tggctaggag gatagtatgc agcacgggtc 120
tgagtctgtg ggatagctgc catgaagtaa cctgaaggag gtgctggctg gtaggggttg 180
attacagggt tgggaacagc tcgtacactt gccattctct gcatatactg gttagtgagg 240
tgagcctggc gctcttcttt gcgctgagct aaagctacat acaatggctt tgtggacctc 300
ggccgcgacc acgctaagcc gaattccagc acactggcgg ccgttactag tggatccgag 360
ctcggtagca agcttggcgt aatcatggtc atag 394

<210> 362
<211> 268
<212> DNA
<213> Homo sapiens

<400> 362
ctgcgcgtgg accagtcagc ttccgggtgt gactggagca gggcttgctg tcttcttcag 60
agtcactttg caggggttgg tgaagctgct cccatccatg tacagctccc agtctactga 120
tgtttaagga tggctcgggt ggtagggccc actagaataa actgagtcca atacctctac 180
acagttatgt ttaactgggc tctctgacac cgggaggaag gtggcggggt ttaggtgttg 240
caaacttcaa tggttatgcg gggatggt 268

<210> 363
<211> 323
<212> DNA
<213> Homo sapiens

<400> 363
ccttgacctt ttcagcaagt gggaagggtg aatccgtctc cacagacaag gccaggactc 60
gtttgtaccc gttgatgata gaatggggtg ctgatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaacattg cggacaccct ccaggaagcg agaatgcaga gtttctctg 180
tgatatcaag cacttcaggg ttgtagatgc tgccattgtc gaacacctgc tggatgacca 240
gcccaaagga gaagggggag atgttgagca tggtcagcag cgtggcttcg ctggctccca 300
ctttgtctcc agtcttgatc aga 323

<210> 364
<211> 393
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(393)
<223> n = A,T,C or G

<400> 364
ccaagctctc catcgtcccc gtgcgcagng gctactgggg gaacaagatc ggcaagcccc 60
acactgtccc ttgcaagggt acaggccgct gcggctctgt gctggtacgc ctcatcactg 120
caccagggg cactggcatc gtctccgcac ctgtgcctaa gaagctgctc atgatggctg 180
gcatcgatga ctgctacacc tcagcccggg gctgcactgc caccctgggc aacttcgcca 240
aggccacctt tgatgccatt tctaagacct acagctacct gacccccgac ctctggaagg 300
agactgtatt caccaagtct ccctatcagg agttcactga ccacctcgtc aagaccacca 360

ccagagtctc cgtgcagcgg actcaggctc cag

393

<210> 365

<211> 371

<212> DNA

<213> Homo sapiens

<400> 365

cctcctcaga gcggtagctg ttcttattgc cccggcagcc tccatagatg aagttattgc 60
aggagttcct ctccacgtca aagtaccagc gtgggaagga tgcacggcaa ggcccagtga 120
ctgcgttggc ggtgcagtat tcttcatagt tgaacatata gctggagtgg tcttcagaat 180
cctgccttct gggagcactt gggacagagg aatccgctgc attcctgctg gtggacctcg 240
gccgcgacca cgctaagccg aattccagca cactggcggc cgttactagt ggatccgagc 300
tcggtaccaa gcttggcgta atcatggtca tagctgtttc ctgtgtgaaa ttgttatccg 360
ctcacaattc c 371

<210> 366

<211> 393

<212> DNA

<213> Homo sapiens

<400> 366

atttcttgcc agatgggagc tcttttgtga agactccttt cgggaaaagt tttttggctt 60
cttcttcagg gatggttgga aggaccatca cactatcccc atccttccaa tcaactgggg 120
tggcaaccct tttttctgct gtcagctgga gagagatgac taccctgaga atctcatcaa 180
agttcctgcc agtggttagct gggtagagga tagacagctt cagcttctta tcaggaccaa 240
aaacaaacac cacacgagct gccacaggca tgcccttttc atccttctct gctggatcca 300
gcatgcccaa caggatggca agctcccgat tcctatcatc gatgatggga aaaggtaact 360
tttctgtggg ctcttcacaa ttgtaagcat tga 393

<210> 367

<211> 327

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(327)

<223> n = A,T,C or G

<400> 367

ccagctctgt ctcatacttg actctaaagt cttnagcagc aagacgggca ttgnnaatct 60
gcagaacgat gcgggcattg tccacagtat ttgcgaagat ctgagccctc aggtcctcga 120
tgatcttgaa gtaatggctc cagtctctga cctgggggtcc cttcttctcc aagtgtctcc 180
ggattttgct ctccagcctc cggttctcgg tctccaggct cctcactctg tccaggtaag 240
aggccaggcg gtcgttcagg ctttgcattg tctccttctc gttctggatg cctccattc 300
ctgccagacc cccggctatc ccggtgg 327

<210> 368

<211> 306

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(306)

<223> n = A,T,C or G

<400> 368

```

ctggagaagg acttcagcag tttnaagaag tactgccaag tcatccgtgt cattgcccac 60
acccagatgc gcctgcttcc tctgcgccag aagaaggccc acctgatgga gatccaggtg 120
aacggaggca ctgtggccga gaagctggac tgggcccgcg agaggcttga gcagcaggta 180
cctgtgaacc aagtgtttgg gcaggatgag atgatcgacg tcatcggggt gaccaagggc 240
aaaggctaca aaggggtcac cagtcgttgg cacaccaaga agctgccccg caagaccac 300
cgagga                                           306

```

<210> 369

<211> 394

<212> DNA

<213> Homo sapiens

<400> 369

```

tcgaccacac ccggaacacg gagagctggg ccagcattgg cacttgatag gatttcccgt 60
cggctgccac gaaagtgcgt ttctttgtgt tctcgggttg gaaccgtgat ttccacagac 120
ccttgaaata cactgcgttg acgaggacca gtctggtgag cacaccatca ataagatctg 180
gggacagcag attgtcaatc atatccctgg ttccattttt aaccatgca ttgatggaat 240
cacaggcaga ggctggatcc tcaaagttca cattccggac ctcacactgg aacacatctt 300
tgttccttgt aacaaaaggc acttcaattt cagaggcatt ctaacaaac acggcgtag 360
ccactgtcac aatgtcttta ttcttcttgg agac                                           394

```

<210> 370

<211> 653

<212> DNA

<213> Homo sapiens

<400> 370

```

ccaccacacc caattccttg ctggtatcat ggcagccgcc acgtgccagg attaccggct 60
acatcatcaa gtatgagaag cctgggtctc ctcccagaga agtggtcctt cgccccgcc 120
ctggtgtcac agaggctact attactggcc tggaaaccggg aaccgaatat acaatttatg 180
tcattgccct gaagaataat cagaagagcg agcccctgat tggaaaggaaa aagacagacg 240
agcttcccca actggttaacc cttccacacc ccaatcttca tggaccagag atcttggatg 300
ttccttccac agttcaaaaag acccctttcg tcaccacccc tgggtatgac actggaaatg 360
gtattcagct tcctggcact tctggtcagc aaccacagtgt tgggcaacaa atgatctttg 420
aggaacatgg ttttaggcgg accacaccgc ccacaacggc cacccccata aggcataggc 480
caagaccata cccgcogaat gtaggacaag aagctctctc tcagacaacc atctcatggg 540
ccccattcca ggacacttct gactacatca tttcatgtca tcctgttggc actgatgaag 600
aacccttaca gttcaggggt cctggaactt ctaccagtgc cactctgaca gga                                           653

```

<210> 371

<211> 268

<212> DNA

<213> Homo sapiens

<400> 371

```

ctgcccagcc ccatttggcg agtttgagaa ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttctttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120
gctccacctg gactacatcg ggccttgcaa atacatcccc ccttgcttgg actctgagct 180
gaccgaattc cccctgcgca tgcgggactg gctcaagaac gtccctgttca cctgttatga 240
gagggatgag gacaacaacc ttctgact                                           268

```


<210> 372
<211> 392
<212> DNA
<213> Homo sapiens

<400> 372
gctggtgccc ctggtgaacg tggacctcct ggattggcag gggccccagg acttagaggt 60
ggaactggtc cccctgggtc cgaaggagga aagggtgctg ctggtcctcc tgggccacct 120
ggtgctgctg gtactcctgg tctgcaagga atgcctggag aaagaggagg tcttgggaagt 180
cctggtccaa agggtgacaa ggggtgaacca ggcggtccag gtgctgatgg tgtcccaggg 240
aaagatggcc caaggggtcc tactgggtcct attgggtcctc ctggcccagc tggccagcct 300
ggagataagg gtgaaggtag tgcccccgga cttccaggta tagctggacc tcgtggtagc 360
cctggtgaga gaggtgaaac ctgcgcgcgc ac 392

<210> 373
<211> 388
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (388)
<223> n = A,T,C or G

<400> 373
ccaagcgctc agatcggcaa ggggcaccan ttttgatctg ccagtgac agccccacaa 60
ccaggtcagc gatgaaggta tcttcagtct ccccggaacg atgagacacc atgacgcccc 120
aaccattggc ctggggccagc ttgcacgcct gaagagactc ggtcacggag ccaatctggt 180
tgactttgag caggaggcag ttgcaggact tctcgttcac ggccttggcg atcctctttg 240
ggttggtcac tgtgagatca tccccacta cctggattcc tgcaactggc gtgaacttct 300
gccaaagctc ccagtcaccc tgggtcaaagg gatcttcgat agacaccact gggtagtcct 360
tgatgaagga cttgtacagg tcagccag 388

<210> 374
<211> 393
<212> DNA
<213> Homo sapiens

<400> 374
ctgacgaccg cgtgaacccc tgcattgggg gtgtcatcct cttccatgag acactctacc 60
agaaggcgga tgatgggctg cccttcccc aagttatcaa atccaagggc ggtgttgtgg 120
gcatcaaggc agacaagggc gtgggtcccc tggcagggac aaatggcgag actaccaccc 180
aagggttgga tgggctgtct gagcgctgtg ccagttacaa gaaggacgga gctgacttcg 240
ccaagtggcg ttgtgtgctg aagattgggg aacacacccc ctcagccctc gccatcatgg 300
aaaatgccaa tgttctggcc cgttatgccg gtatctgccg gcagaatggc attgtgcccc 360
tcgtggagcc tgagatcctc cctgatgggg acc 393

<210> 375
<211> 394
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (394)

<223> n = A,T,C or G

<400> 375

```
ccacaaatgg cgtggtccat gtcacacacn ttntttctgca gcctccagcc aacagacctc 60
aggaaagagg ggatgaactt gcagactctg cgcttgagat cttcaaaca gcatcagcgt 120
tttccagggc ttcccagagg tctgtgacgac tagccctgt ctatcaaaaag ttattagaga 180
ggatgaagca ttagcttgaa gcactacagg aggaatgcac cacggcagct ctccgccaat 240
ttctctcaga tttccacaga gactgtttga atgttttcaa aaccaagtat cacacttta 300
tgtacatggg ccgcaccata atgagatgtg agccttgtgc atgtggggga ggagggagag 360
agatgtactt tttaaactcat gttcccccta aaca 394
```

<210> 376

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 376

```
ctgcccagcc cccattggcg agtttgattn ggtgtgcagc aatgacaaca agaccttoga 60
ctcttcctgc cacttccttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120
gctccacctg gactacatcg ggcttgcaa atacatcccc ccttgccctgg actctgagct 180
gaccgaattc cccctgcgca tgcgggactg gctcaagaac gtcctggtca cctgtatga 240
gagggatgag gacaacaacc ttctgactga gaagcagaag ctgcggtga agaagatcca 300
tgagaatgag aagcgctgg aggcaggaga ccacccctg gagctgctgg ccggggactt 360
cgagaagaac tataacatgt acatcttccc tg 392
```

<210> 377

<211> 292

<212> DNA

<213> Homo sapiens

<400> 377

```
caatgtttga tgcttaaccc ccccaatttc tgtgagatgg atggccagtg caagcgtgac 60
ttgaagtgtt gcatgggcat gtgtgggaaa tctgctgtt cccctgtgaa agcttgattc 120
ctgccatatg gaggaggtc tggagtcctg ctctgtgtgg tccaggctct ttccaccctg 180
agacttggct ccaccactga tctctctct tggggaaagg cttggcacac agcaggcttt 240
caagaagtgc cagttgatca atgaataaat aaacgagcct atttctcttt gc 292
```

<210> 378

<211> 395

<212> DNA

<213> Homo sapiens

<400> 378

```
ctgctgcttc agcgaagggt ttctggcata tccaatgata aggctgccaa agactgttcc 60
aataccagca ccagaaccag ccactcctac tgttgacgca cctgcaccaa taaatttggc 120
agcagtatca atgtctctgc tgattgcaact ggtctgaaac tccctttgga ttagctgaga 180
cacaccattc tgggccctga ttttcctaag atagaactcc aactctttgc cctctagcac 240
atagccatct gctcgccac actgtcccg ccttgaagcg atgcacgcaa gaagcttgcc 300
ctgctggaac tgctcctcca ggagactgct gattttggca ttctttttcc tttcatcata 360
tttcttctga atttttttaga tcgttttttg ttttaa 395
```

<210> 379
<211> 223
<212> DNA
<213> Homo sapiens

<400> 379
ccagatgaaa tgctgccgca atggctgtgg gaaggtgtcc tgtgtcactc ccaattttctg 60
agctccagcc accaccaggc tgagcagtga ggagagaaaag tttctgcctg gccctgcatc 120
tggttccagc ccacctgccc tccccttttt cgggactctg tattccctct tgggctgacc 180
acagcttctc cctttcccaa ccaataaaagt aaccactttc agc 223

<210> 380
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (317)
<223> n = A,T,C or G

<400> 380
tcgaccacag tattccaacc ctctgtgcn tngagaagtg atggaggggtg ctgacaacca 60
gggtgcagga gaacaaggta gaccagtga gcagaatatg tatcggggat atagaccacg 120
attccgcagg ggccctcctc gccaaagaca gcctagagag gacggcaatg aagaagataa 180
agaaaatcaa ggagatgaga cccaagggtca gcagccacct caacgtcggg accgccgcaa 240
cttcaattac cgacgcagac gcccgaaaaa ccctaaacca caagatggca aagagacaaa 300
agcagccgat ccaccag 317

<210> 381
<211> 392
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)... (392)
<223> n = A,T,C or G

<400> 381
cctgaaggaa gagctggcct acctgaatnn naaccatgag gaggaaatca gtacgctgag 60
gggccaagtg ggaggccagg tcagtgtgga ggtggattcc gctccgggca ccatctctgc 120
caagatcctg agtgacatgc gaagccaata tgaggtcatg gccgagcaga accggaagga 180
tgctgaagcc tggttcacca gccggactga agaattgaac cgggaggtcg ctggccacac 240
ggagcagctc cagatgagca ggtccgaggt tactgacctg cggcgacccc ttcagggtct 300
tgagattgag ctgcagtcac agacctcggc cgcgaccacg ctaagccgaa ttccagcaca 360
ctggcggcgg ttactagtgg atccgagctc gg 392

<210> 382
<211> 234
<212> DNA
<213> Homo sapiens

<400> 382

```
cctcgatgtc taaatgagcg tggtaaagga tgggtgcctgc tgggggtctcg tagatacctc 60
gggacttcat tccaatgaag cggttctcca cgatgtcaat acggcccacg ccatgcttgc 120
ccgcgacttc gttcaggtac atgaagagct ccaaggaggt ctggtgggtg gtgccatcct 180
tgacgttggt caccttcaca gggacccctt ttttgaactc catctccaga atgt 234
```

<210> 383

<211> 396

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(396)

<223> n = A,T,C or G

<400> 383

```
ccttgacctt ttcagcaagt gggaagggtg tttccgtctc cacagacaag gccaggactc 60
gtttgnaccc gttgatgata gaatggggta ctgatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaacattg cggacaccca ggatttcaat ggtgcccctg gagattttag 180
tggtgatacc taaagcctgg aaaaaggagg tcttctcggt cccgagacca gtgttctggg 240
ctggcacagt gacttcacat ggggcaatgg caccagcacg ggcagcagac ctgcccgggc 300
ggccgctcga aagccgaatt ccagcacact ggcggccgtt actagtggat ccgagctcgg 360
taccaagctt ggcgtaatca tggatcatagc tggttc 396
```

<210> 384

<211> 396

<212> DNA

<213> Homo sapiens

<400> 384

```
gctgaatagg cacagagggc acctgtacac cttcagacca gtctgcaacc tcaggctgag 60
tagcagtga ctcaggagcg ggagcagtc attcaccctg aaattcctcc ttggtcactg 120
ccttctcagc agcagcctgc tcttcttttt caatctcttc aggatctctg tagaagtaca 180
gatcaggcat gacctccat ggggtgttcac gggaaatggg gccacgcatg cgcagaactt 240
cccagagccag catccaccac atcaaaccce ctgagtgagc tcccttggtg ttgcatggga 300
tggaatgtc cacatagcgc agaggagaat ctgtgttaca cagcgcaatg gtaggtaggt 360
taacataaga tgcctccgtg agaggctggt ggtcag 396
```

<210> 385

<211> 2943

<212> DNA

<213> Homo sapiens

<400> 385

```
cagccaccgg agtggatgcc atctgcaccc accgccctga cccacaggc cctgggctgg 60
acagagagca gctgtatttg gagctgagcc agctgaccca cagcatcact gagctgggccc 120
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<210> 386

<211> 2608

<212> DNA

<213> Homo sapiens

<400> 386

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<210> 387

<211> 1761

<212> DNA

<213> Homo sapiens

<400> 387

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1761

<210> 388

<211> 772

<212> PRT

<213> Homo sapiens

<400> 388

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Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
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Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
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Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
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Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
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Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
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Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
      115                               120                        125

Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
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Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
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His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val

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 Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
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 Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
 515 520 525
 Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly
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 Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
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 Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
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 Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
 580 585 590
 Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
 595 600 605
 Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
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 Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
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 Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
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 660 665 670
 Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
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 Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
 690 695 700
 Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
 705 710 715 720
 Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
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 Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
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Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Ala Pro His Arg Gly
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Gly Leu Pro Val
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<210> 389

<211> 833

<212> PRT

<213> Homo sapiens

<400> 389

Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr
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Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala Ile
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Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu Gln
 35 40 45

Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu Gly
 50 55 60

Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr His
 65 70 75 80

Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val Tyr
 85 90 95

Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala Ala
 100 105 110

Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn Leu
 115 120 125

Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr Thr
 130 135 140

Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr Ser
 145 150 155 160

Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro Glu
 165 170 175

Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg Pro
 180 185 190

Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu Leu
 195 200 205

Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu Asp
 210 215 220

Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val Pro
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 Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn Phe
 245 250 255
 Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly Ser
 260 265 270
 Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser Pro
 275 280 285
 Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg Val
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 Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp Leu
 305 310 315 320
 Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile Lys
 325 330 335
 Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg Leu
 340 345 350
 Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr Asn
 355 360 365
 Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr Thr
 370 375 380
 Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His Leu
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 405 410 415
 Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val Leu
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 Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro Phe
 435 440 445
 Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly Ala
 450 455 460
 Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val Gly
 465 470 475 480
 Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr
 485 490 495
 His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser Leu
 500 505 510
 Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu Tyr

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Phe	Ser	Pro	Leu	Ala	Arg	Arg	Val	Asp	Arg	Val	Ala	Ile	Tyr	Glu	Glu
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Phe	Leu	Arg	Met	Thr	Arg	Asn	Gly	Thr	Gln	Leu	Gln	Asn	Phe	Thr	Leu
			740					745					750		
Asp	Arg	Ser	Ser	Val	Leu	Val	Asp	Gly	Tyr	Phe	Pro	Asn	Arg	Asn	Glu
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<210> 390

<211> 438

<212> PRT

<213> Homo sapiens

<400> 390

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Thr Glu Gly Val Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser
 35 40 45

Ser Met Gly Pro Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro
 50 55 60

Glu Lys Asp Gly Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His
 65 70 75 80

Pro Asp Pro Val Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu
 85 90 95

Leu Ser Gln Leu Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu
 100 105 110

Asp Arg Asp Ser Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser
 115 120 125

Ile Arg Gly Glu Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu
 130 135 140

Ser Asn Pro Asp Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp
 145 150 155 160

Ile Gln Asp Lys Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp
 165 170 175

Thr Phe Arg Phe Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu
 180 185 190

Val Thr Val Lys Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val
 195 200 205

Glu Gln Val Phe Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu
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Gly Ser Thr Tyr Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser
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 Ser Val Tyr Gln Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu
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 275 280 285
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 Gln Val Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val
 305 310 315 320
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<210> 391

<211> 2627

<212> DNA

<213> Homo sapiens

<400> 391

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 cctgagctgc acttttgaac ctgacatcaa actttctgat atcgtgatac aatggctgaa 300
 ggaaggtggt ttaggcttgg tccatgagtt caaagaaggc aaagatgagc tgctcggagca 360

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<210> 392

<211> 310

<212> PRT

<213> Homo sapiens

<400> 392

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Ser Thr Gln Ile Arg Trp Glu Pro Ser Pro Ala Met Ala Ser Leu Gly
          20                      25                      30

```

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Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile Ile Ile Leu Ala Gly
          35                      40                      45

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Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser Gly Arg His Ser Ile

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50 55 60
 Thr Val Thr Thr Val Ala Ser Ala Gly Asn Ile Gly Glu Asp Gly Ile
 65 70 75 80
 Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu Ser Asp Ile Val Ile
 85 90 95
 Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val His Glu Phe Lys Glu
 100 105 110
 Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr
 115 120 125
 Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu
 130 135 140
 Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile
 145 150 155 160
 Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala
 165 170 175
 Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr
 180 185 190
 Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val Trp
 195 200 205
 Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser Asn Thr
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 Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val Val Ser Val
 225 230 235 240
 Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser Cys Met Ile Glu Asn
 245 250 255
 Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val Thr Glu Ser Glu Ile
 260 265 270
 Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser Lys Ala Ser Leu Cys
 275 280 285
 Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu Leu Pro Leu Ser Pro
 290 295 300
 Tyr Leu Met Leu Lys
 305

<210> 393

<211> 283

<212> PRT

<213> Homo sapiens

11729.1 contg

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TGATCTCAGCTCGCTGCAACCTCCGCTCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGGGATTACAGGCGCGCCGCCACGCTCAGCTAAATTTTTTTGTATTTTTAGT
AGAGACAGGGTTTCACCAGTTGGCCAGGCTGCTCTTGAACCTCCTGACCTCAGGTGATCCA
CCCGCTCGGCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCCGGCCCCCAA
AGCTGTTTCTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11729-45.21.21.cons1

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TAATTATTGTGTGAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAG
GAGGTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATG
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11729-45.21.21.cons2

TTAGAGAGGCCACAGAAGGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTTGTTTGT
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TGATCTCAGCTCGCTGCAACCTCCGCTCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGGGATTACAGGCGCGCCGCCACGCTCAGCTAAATTTTTTTGTATTTTTAGT
AGAGACAGGGTTTCACCAGTTGGCCAGGCTGCTCTTGAACCTCCTGACCTCAGGTGATCCA
CCCGCTCGGCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCCGGCCCCCAA
AGCTGTTTCTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11731.1contg

TCTTTTTCTTTTGGATTTTCTTCAATTTGTACGTTTGAATTTATGAAGTTGTTCAAGGGCTAA
CTGCTCTGTATTATAGCTTTCTCTGAGTTCTTTCAGCTGATTGTTAAATGAATCCATTTCTG
AGAGCTTAGATGCAGTTTCTTTTCAAGAGCATCTAATTTGTTCTTTAAGTCTTTGGCATAAT
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TTATCCAAAACCTTCTAGCTCAGTCTTTTGTGTTTCTTTCTGATTTGGACATCTTGTAGTCTG
CCTGACATCTGCTGATGXTTCCATTTCACTGCTTCCAGTCCAGGTGGAGACTTXXCTTTCT
GGAGCTCAGCCTGACAATGCCCTTCTTGXTCCCT

FIG. 1A

11731.2contig

AGCCAGATGGCTGAGAGCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCCACAG
 CGATGAATGGAGGGCCAAATATGTGGCTATTACATCTGAAGAACGTACTAAGCATGATA
 AACAGTTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCCGTACTTT
 TTCTACAGTCAGGTCTGCCGGCCCCGGTTTTAGCTGAAATATGGGCCCTATCAGATCTG
 AACAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
 AAGTTGCAGGGCCAAACAGCTGCCTGTAGTCTCTCCTCTATCATGAAACAACCCCCCTATGT
 TCTCTCCACTAATCTCTGCTCGTTTTGGGATGGGAAGCATGCCCAATCTGTCCATTCATCAG
 CCATTGCCTCCAGTTGCACCTATAGCAACACCCCTGTCTTCTGCTACTTCAGGGACCAGTAT
 TCCTCCCCTAATGATGCCTGCTCCCCTAGTGCCTTCTGTTAGTA

11734.1contig

AATAGATTTAATGCAGAGTGTCAACTTCAAATTGATTGATAGTGGCTGCCTAGAGTGCTGTG
 TTGAGTAGGTTTCTGAGGATGCACCCTGGCTTGAAGAGAAAGACTGGCAGGATTAACAAT
 ATCTAAAATCTCACTTGTAGGAGAAACCACAGGCACCAGAGCTGCCACTGGTGCTGGCAC
 CAGCTCCACCAAGGGCCAGCGAAGAGCCCCAAATGTGAGAGTGGCGGTGAGGCTGGCACCAG
 CACTGAAGCCACCCTGGTGCTGGCACTGGCACTGGCACTGTTATTGGTACTGGTACTGGC
 ACCAGTGCTGGCACTGGCACTCTCTTGGGCTTTGGCTTTAGCTTCTGCTCCCGCTGGATCC
 GGGCTTTGGCCCAAGGGTCCGATATCAGCTTCTGCTCCAGTTGCAGGGCCCCGGCAGCATTCTC
 CGAGCCGAGCCCCAATGCCCATTCGAGCTCTAATCTCGGCCCTAGCCTTGGCTTCAGCTGCA
 GCCTCAGCTGCAGCCTTCAAATCCGCTTCCATCGCCTCTCGGTAC

11734.2contig

GCCAAAGAAAGCCCCAAAGGTGAAGCATCTCGATGGGGAAGAGGATGGCAGCAGTGATCA
 GAGTCAGGCTTCTGGAACACAGGTGGCCGAAGCGTCTCAAAGGCCCTAATGGCCTCAAT
 GGGCCGCAGGGCTTCAAGGGGTCCCATAGCCTTTGGGGCCCCGAGGGCATCAAGGACTCG
 GTTGGCTGCTTGGGCCCCGAGAGCCTTGTCTCCTGAGATCACCTAAAGCCCCGTAGGGGC
 AAGCCTCGCCGTAGAGCTGCCAAGCTCCAGTCATCCCAAGAGCCTGAAGCACCACCACCT
 CGGGATGTGGCCCTTTTCCAAGGGGAGGGCAAAATGATTTGGTGAAGTACCTTTTGGCTAAAG
 ACCAGACGAAGATTCCCATCAAGCGCTGGGACATGCTGAAGGACATCATCAAAGAATACA
 CTGATGTGTACCCCGAAATCATTTGAAGCAGCAGGCTATTCCTTGGAGAAGGTATTTGGGAT
 TCAATTGAAGGAAATGATAAGAAATGACCCTTGTACATTCTTCTCAGC

11736.1contig

GAGGTCTCACTATGTTGCCCAAGGCTGTTCTTGAACCTCTGGGATCAAGCAATCCACCCATG
 TTGGTCTCCAAAAGTGCTGGGATCATAGGCGTGAGCCACCTCACCCAGCCACCAATTTTCA
 ATCAGGAAGACTTTTCTTCTTCAAAGAAGTGAAGCGTTTCCAGAGTATAGCTACACTATT
 GCTTGCTGAGGGTGACTACAAAAATGCTTGTCTAAAAGGTTAGGATGGGTAAAGAAATTAG
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 ATAATTATTCACATATTTCTGATTTATCACAGAAATAATGTATGAAATGCTTTGAGTTTCT
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 CAACAGGACCTTGTCTATAAAATCTGGGATAAGAGAAATAGTCTCTGGGTGTTTGTCTTAAAT
 TGATAAAAAATTAATTGTCCATCTTTAGTTGAGAATCACAAAA

FIG. 1B

11766.1.contig

CTGGGATCATTCTCTTGATGTCATAAAAGACTCTTCTTCTCCTCTTCATCCTCTTCTTCAT
CCTCTTCTGTACAGTGCTGCCGGGTACAACGGCTATCTTTGTCTTTATCCTGAGATGAAGAT
GATGCTTCTGTTTCTCCTACCATAACTGAAGAAAATTCGCTGGAAGTCGTTTGACTGGCTGT
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AGCATCTTCATCTGGATGTTTATTTTCAAAGGGCTCACTGAGGAAAATTTCTGATTCAGAG
GTCGAAGAGTCACTGTGATTTTCTCCTCATTTTGTGCAAAATTTGCCTCTTTGCTGTCTGT
GCTCTCAGGCAACCCATTTGTTGTCAATGGGGGCTGACAAAGAAACCTTTGGTTCGATTAAGT
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GAAACATAACACCATTCAATTCGATTTAAACTATTGGAATTGGTTTT

11766.2.contig

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TTGTATGTAGCCAAGACTGCAAGAAACAATGATTCAGTGGTCCCAATTTAAAGGCTATTTT
ATTTCAAACCTGGAGAAAGTCAATGCAATTCAGAAGTTCAGCTCCTGAGCCAAAGAGGTC
CTCCCAACCCTAATGTCCA

11773.2.contig

AAGCAGGCGGCTCCCGCCTCCAGGGCCGCTGCCACCTGCCCGCCCGCCCGCTCGCTCGCT
CGCCCGCCCGCCCGCTGCCGACCCGAGCATGCTGCCGAGAGTGGGCTGCCCGCGCT
GCCGXTGCCG

11775-1&2

ATCTCTTGATGCCAAATAATTAATAAATCTTTGAAACAAGTTCAGATGAAATAAAAAAT
CAAAGTTTGCAAAAAACGTGAAGATTAACCTAAATGTCAAATAATCCTCATTGCCCCAAATC
AGTATTTTCTATTTCTATGCAAAAGTATGCGTTCAAACCTGCTTAAATGATATATGATATG
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AAAGATTATAAGACACCTTAC
AAAAACAATTTGCCCTCTCCTAAAAATAGCAACATGAAGACCCTTAAATGCTGCCAGGAG
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GTCCACCCACTGGTGCCCTGAAAAAATCCCAATAATTTTCCGCTCCCACTTCTGCTGTGTC
TCTTCCACATCCTCACATAGACCCGAGACCCGCTGCCCGCTGGCTGGGCATCGCATTTGCTG
GTAGAGCAAGTCATAGGTCTCTCTTTGACGTACAGAAAGCGATACACCAAAATTGCCCTGGT
CGGTCAATGTACATAACCAGAGA

FIG. 1D

11777.1&2.cons

CAGACGGGGTTTCACTATGTTGGCTAGGCTGGTCTTGAACCTCTGACTTCAGGTGATCTGC
CTGCCTTGGCCTCCCAAGTGCTGGGATTACAGGCATAAGCCACTGCGCCCGGCTGATCTG
ATGGTTTCATAAGGCTTTTCCCCCTTTTGGTCAGCACTTCTCCTTCTGCGCCCATGTGAAG
AAGGACATGTTTGCTTCCCCCTTCCACCAGGATTGTAAGTTGTTTCTGAGGCCTCCCCGGCC
ATGCTGAACCTGTGAGTCAATTAACCTCTTTCTTTATAAATTATCCAGTTTTGGGTATGTC
TTTATTAGTAGAATGAGAACAGACTAATACAACCCTTAAAGGAGACTGACGGAGAGGATT
CTTCCTGGATCCCAGCACTTCTCTGAAATGCTACTGACATTCTTCTTGAGGACTTTAAACTG
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TAGATGACATGGGCAGCCTCCCCCTGAGGCCAGGTGTGGCCGAACCTGGGCAGTGCTGCAC
CCACCCACCAGGGCCAAGTCTGTCTTGGAGAGCCAAGCCTCAATCACTGCTAGCCTCA
AGTGTCCCCAAGCCACAGTGGCTAGGGGGACTCAGGGAACAGTTCCCAGTCTGCCCTACTT
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11779.2.contig

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AGCAGCTGGCCCGGAGGCTGAAGCCCGGGCTGAACGTGAGGCCGAGGCGCGGAGACGG
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GAGGAGATAATGAAGAGGACTCGGAAATCAGAAGCCCGCCGAAGCCAAGAAGCAGGATGC
AAAGGAGACCCGACCTAACAAATCCCGCCCAAGACCTTTGTGAAAGCTGTAGAGACTCGGC
CCTCTGGGCTTCCAGAAAGGAATCTATTGACAGAAAGGAAGGAGCTXGGCCCCCAXGGA

11781 & 37.cons

CTCTGTGGAAAACCTGATGAGGAATGAATTTACCAATACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCAACACAGAGAAGCAAGAAGAAGCTTTTCTCATACAGGATC
AGCAGGGCCCTCATCAGACTGGGCTGGATTCAACTCACCCACACAGACCGGCTTTCTCTC
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GTTTGCTCCCCCAAGTTCCAGGAAGCTGGATTCTTTAAACTAACTGACCATGGACTAGAGG
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TTAGAAAATCTTTTGGATTTTCTGTGCTTTATGGCAATATGAATGGAGCTTATTACTGGG
GTGAGGGACAGCTTACTCCATTTGACCAGATTGTTTGGCTAACACATCCCGAAGAATGATT
TTGTACAGGAATTAATTTAATTAATAAATAATTCAGGATATTTTCTCTACAAATAAGTAA
CAAT

FIG. 1E

11781-76-87-37

CTCTGTGGAAAACCTGATGAGGAATGAATTTACCATACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCAACACAGAGAACGAAGAAGAACTTTTCCTCATACAGGATC
AGCAGGGCCTCATCACACTGGGCTGGATTTCATACTACCCACACAGACCGCGTTTCTCTC
CAGTGTGCGACCTACACACTCACTGCTCTTACCAGATGATGTTGCCAGAGTCAGTAGCCATT
GTTTGCTCCCCCAAGTTCCAGGAAACTGGATTCTTTAAACTAACTGACCATGGACTAGAGG
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CAATTA

11784-1 & 2

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CTCATTATAAATTGAATAAAAAGCGAATGTTTTGGCACCTGATATAATCTGCCAGGCTATG
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TATTTAATAAAATGAACATTAATC

11785.2.contig

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AGTGAGACTCAAGAGTCTACTGCTTTAGTGGGAACCTACAGAAAAGTGGTGTACCCAGAA
AAACAGGAGCAATTAGAAAAGCTTCCCAATTTTCAAAGCTCCGCAAAACAGGATGTGCTTT
CCTTTGCCCATTTAGGGTTTCTTCTTTTCTTTCTTTTATTAACT

FIG. 1F

11718-1&2 cons

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CATCTCAACCACCAGCCTCTGTGGGGGGCAGGTGGGCGTCCCTGTGGGCCTCTGGGCCCAC
GTCCAGCCTCTGTCTCTGCCTTCCGTTCTTCGACAGTGTTCGCGCATCCCTGGTCACTTG
GTACTTGGCGTGGGCCTCCTGTGCTGCTCCAGCAGCTCCTCCAGGXGGTGGGCCCCGTTCA
CCGCAGCCTCATGTTGTGTCCGGAGGCTGCTCAGGCCTCCTCCTTCCTCGCGAGGGCTGT
CTTCACCTCCGGXGCACCTCCTCCAGCTCCAGCTGCTGGCGGGCCTGCAGCGTGGCCAGC
TCGGCCTTGGCCTGCCGCGTCTCCTCCTCARAGGCTGCCAGCCGGTCTCGAACTCCTGGC
GGATCACCTGGGCCAGGTTGCTGCGCTCGCTAGAAAGCTGCTCGTTCACCGCCTGEGCATC
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TCACTCTCCTCCTTGGCCAGCGCCATGTGCGCCTCCAGCCGGTGAATGACCAGCTCAATCT
CCTTGTCCCGGCCCTTTCGGATTTCCTTCCCTCAGCTCCTGTTCCCGGTTACAGCAGCCACGCC
TCCTCCTTCCTGGTGCGGCCGGCCTCCCAAGCCTGCCTCTCCAGCTCCAGCTGCTGCTTACG
GGTATTACAGCTCCATCTGGCGGGCCTGCAGCGTGGCCA

13690.4

CAACTTATTACTTGAAATTATAATATAGCCTGTCCGTTTGCTGTTTCCAGGCTGTGATATAT
TTTCCTAGTGGTTTGACTTTAAAAATAAATAAGGTTTAATTTTCTCCCC

13693.1

TGCAAGTCACGGGAGTTTATTTATTTAAATTTTTTCCCCAGATGGAGACTCTGTGCGCCAGG
CTGGAGTGCAATGGTGTGATCTTGGCTCACTGCAACCTCCACCTCCTGGGTTCAAGCGATT
CTCCTGCCACAGCCTCCCGAGTAGCTGGGATTACAGGTGCCCCGCCACCACACCCAGCTAAT
TTTTATATTTTATGTAAGACAGGGTTTCCCATGTTGGCCAGGCTGGTCTTGAACCTTCTGA
CCTCAGGTGATCCACCTGCCTCGCCCTCCCAAGGTGTTGGGATTACAGGCGTGAGCTACCC
GTGCCTGCCCAGCCACTGGAGTTAAAGGACAGTCATGTTGGCTCCAGCCTAAGGCGGCA
TTTTCCCCCATCAGAAAGCGCGCGGCTCCTGTACCTCAAAATAGGGCACCTGTAAAGTCAG
TCAGTGAAGTCTCTCCTCTAACTCCCCACCCGGGGCCATTGGCNTCTGACACAGCCTTGGC
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13694.1

CAGAGAATCTKAGAAAGATGTGCGGTTTTCTTTAATGAATGAGAGAAGCCCAATTTGTATC
CCTGAATCATTTAGAAAAGCGCGCGGTGGCGACAGCGCGGACCTAGGGATCGATCTGGAG
GGACTTGGGGACCGTGCAGAGACCTCTAGCTCGAGCGGACGGACCTCCCGCCGGGATGC
CTGGCGAGCAGATGGACCTACTGGAAGTCAGTTGCAATTCAGATTTCTCTCAGCAAGATAC
TCCTTGCCCTGATAATTGAAGATTCTCAGCCTGAAAGCCAGGTTCTAGAGGATGATTCTGGT
TCTCACTTCAGTATGCTATCTCGACACCTTCCTAATCTCCAGACGCACAAAGAAAATCCTG
TGTTGGATGTTGNGTCCAATCCTTGAACAAACAGCTGGAGAAGAACGAGGAGACCGGTAA
TAGTGGGTTCAATGAACATTTGAAAGAAAACCAGGTTGCAGACCCTG

FIG. 1G

13694.2

GACTGTCTCTGAACAAGGGACCTCTGACCAGAGAGCTGCAGGAGATGCAGAGTGGTGGCAG
GAGTGGAAAGCCAAAAGAAACACCCACCTTCCCTTGAAGGAGTAGAGCAACCATCAGAAG
ATACTGTTTTATTGCTCTGGTCAAACAAGTCTTCTGAGTTGACAAAACCTCAGGCTCTGGT
GACTTCTGAATCTGCAGTCCACTTTCCATAAGTCTTGTGCAGACAACCTGTTCTTTTGCTTC
CATAGCAGCAACAGATGCTTTGGGGCTAAAAGGCATGTCTCTGACCTTGCAGGTGGTGG
ATTTTGCTCTTTTACAAACATGTACATCCTTACTGGGCTGTGCTGTACAGGGATGTCTTGC
TGGACTGTTCTGCTATGGGGATATCTTCTGTTGGACTGTTCTTCATGCTTAATTGCAGTATTA
GCATCCACATCAGACAGCCTGGTATAACCAGAGTTGGTGGTACTGATTGTAGCTGCTCTT
TGTCCACTTCATATGGCACAAAGTATTTTCTCAACATCCTGGCTCTGGGAAG

13695.1

GAAATGTATATTTAATCATTTCTCTTGAACGAACAGAACTCTRAAATCAGTTTTCTATAACAR
CATGTAATACAGTCACCGTGGCTCCAAGGTCCAGGAAGGCAGTGGTTAACACATGAAGAG
TGTGGGAAGGGGGCTGGAAACAAGTATTCTTTCTTCAAAGCTTCAATCCTCAAGGCCT
CAATCAAGCAGTCATTGCTCTTCTTCAAAGTCTGTGTGTGCTTCATGGAAGGTATAT
GTTTGTGCTTAAATTTGAATTGTGCGCCAGGAAGGGTCTGGAGATCTAAATTCAGAGTAAG
AAAACCTGAGCTAGAACTCAGGCAATTTCTCTTACAGAACTTGGCTTGCAGGGTAGAATGA
ANGGAAAGAAACTTAGAAGCTCAACAAGCTGAAGATAATCCCATCAGGCATTTCCCATAG
GCCTTGCAACTCTGTTCACTGAGAGATGTTATCTCTG

13695.2

AGTCTGGAGTGACCAAACAAGAGCAACAACAARRAGAAGCCAAAAGCAGAAAGGCTCCA
ATATGAACAAGATAAAATCTATCTTCAAAGACATATTAGAAGTTGGGAAAATAATTCTATGT
GAACTAGACAAGTGTGTTAAGAGTCAATAAGTAAAATGCCAGTGGAGACAAGTGCAATCCCC
AGATCTCAGGGACCTCCCCCTGCCCTGTACCTGGGGAGTGAAGAGGACAGGATAGTGCAATG
TTCTTTGTCTCTGAATTTTATGTTATATGCTCTGTAAATGTTGCTCTGAGGAAGCCCCCTGGAA
AGTCTATCCCAACATATCCACATCTTATAATCCCAAAATTAAGCTGTAGTATGTACCCTAA
GACGCTGCTAATTTGACTGCCACTTCCCAACTCAGGGGGGGCTGCATTTTAGTAATGGGTCA
AATGATTCACTTTTTATGATGCTTCCCAAGCTGCCCTTGGCTTCTCTTCCCAACTGACAAATG
CCCAAGTTGACAAAATGATCATAAATTTAGCATAAACCAGCAATCGGGACCCCC

1369.1

TAGCTGTCTTCTCCTCACTCTTATGGCAATGACCCCATATCTTAATGGATTAAAGATAATGAAA
GTGTATTTCTTACACTCTGTATCTATACACAGAAGCTGAGGTGATACCCCGCTTGTCAATTGT
CATCCATATTTCTGGCACTCAGGGGGGAATTTCTGGAATATTGCCAGGGAGCATGGCAGA
GGGGCACAGTGCAATCTGGGGGAATGCACATTGGCTCAGCCTGGGTAAATGAGTGATATAC
ATTACCTCTGTTTACAACTCAATGGCCAGCAGTCACAAGGCCCCACCAAAATACCAGAG
CCCAAGAAATGTACTCCTGTTGATATGGTTTCTCTGTCTCCCAACCCAAAATCTCATCTTGA
ATTGTAAGCTCCCATAAATCCCATGTGTTGTGGGACCGACCTGGTG

FIG. 1H

13697.2

ATCATGAGGATGTTACCAAGGGATGGTACTAAACCATTTGTATTTCGTCTGTTTTCACT
GCTTTGAAGATACTACCTGAGACTGGGTAAATTTATAAACAAAAGAGATTTAATTGACTCAC
AGTTCTGCATGGCTGAAGAGGCCTCAGGAACTTACAGTCATGGTGGAAAGGCAAAGGAGG
AGCAAGGCATGTCTTACATGTCAGTAGGAGAGAGCGAGAGCAGGAGAACCTGCCACTT
ATAAACCATTCAGATCTCATAACTCCCTATCATGAGAAAAACATGGAGGAAACCACCTC
ATGATCCAATCACCTCCCGCCAGGTCCCTCCCTCGACACGTGGGGATTATAATTGAGGATT
AGAGGGACACAGAGACAAACCATATCATCATTCATGAGAAATCCACCCTCATAGTCCAAT
CAGCTCCTACCAGGCCCCACCTCCAACACTGGGGATTGCAATTCAACATGAGATTTGGATG
GGGACACAGATTCAAACCATATCATAC

13699.1&2

CATGGCCTTTCTCCTTAGAGGCCAGAGGTGCTGCCCTGGCTGGGAGTGAAGCTCCAGGCAC
TACCAGCTTTCTGATTTTCCCGTTTGGTCCATGTGAAGAGCTACCACGAGCCCCAGCCTCA
CAGTGTCCTCAAGGGCAGCTTGGTCTCTTGTCTGCAGAGGCAGGCTGGTGTGACCTT
GGGAACCTTGACCCGGGAACAACAGGTGGCCAGAGTGAGTGTGGCCTGGCCCCCTCAACCT
AGTGTCCTCTCTCTCTCTCTCTGGAGCCAGTCTTGAGTTTAAAGGCATTAAAGTGTAGATA
CAAGCTCCTTGTGGCTGGAAAAACACCCCTCTGCTGATAAAGCTCAGGGGGCAGTGAGGA
AGCAGAGGGCCCTTGGGGGTGCCCTCTGAAAGAGAGCGTCAGGCCATCAGCTCTGTCCCTC
TGGTGCTCCCACGTCTGTTCCTCACCTCCATCTCTGGGAGCAGCTGCACCTGACTGGCCAC
GCGGGGGCAGTGGAGGCACAGGCTCAGGCTGGCCGGGCTACCTGGCACCTATGGCTTAC
AAAGTAGAGTTGGCCAGTTTCTTCCACCTGAGGGGAGCAGTCTGACTCCTAACAGTCTT
CCTTGGCCTGCCATCATCTGGGGTGGCTGGCTGTCAAGAAAGGCCGGGATGCTTTCTAAA
CACAGCCACAGGAGGCTTGTAGGGCATCTTCCAGCTGGGGAAACAGTCTTAGATAAGTAA
GGTCACTTGCTAAAGGCTCTCCAGCACCTTTGATCTTGGAGTCTCACAGCAGACTGCATGT
SAACAACCTCGAACCGAAAAACATCCCTCAGTATAAAA

13703.3

CCAGAACCTCCTTCTCTTTGGAGAAATGGCGAGGCCTCTTGGAGACACAGAGGGTTTACCT
TGGATGACCTCTAGAGAAAATGGCCAAAGAGCCACCTTCTGGTCCCAACCTGCAGACCCC
ACAGCAGTCAGTTGGTCAGGCCCTGCTGTAGAAAGTCACTTGGCTCCATTGCCTGCTTCCA
ACCAATGGGCAGGAGAGAAAGCCCTTATTTCTCGCCACCCATTCTCCTGTACCAGCACCT
CCGTTTTCACTCAGYGTGTCCAGCAACGGTACCGTTTACACAGTCA

13705.1

TGCATGTAGTTTTATTTATGTGTTTTGTCTGGAAAAACCAAGTGTCCCAGCAGCATGACTGA
ACATCACTCACTTCCCCTACTTCACTACAAGGCCAACGCCGAGAGCCCAGACCAGGATTC
CAAAACACACTGCACGAGAAATTTGTGGAATCCGCTGTCAAGTAAGTGTCCGTCACTGACCCA
RACGCTGTTACGTGGCACAAGACTGTACAGTCCACGTAACAGCACTGTACTTTTCTCCCA
TGAACAGTTACCTGCCATGTATCTACATGATTGAGAACATTTTGAACAGTTAATTCTGACA
CTTGAATAATCCCATCAAAAACCGTAAAAATCACTTTGATGTTTGTAAACGACAACATAGCAT
CACTTTACGACAGAAATCATCTGAAAAACAGAACAGAAATACATACATCTTAAAAAATG
CTGGGGTGGGCCAGGCACAGCTTACCGCTGTAAATCCAGCACTTTGGGAGGCTTAAGCG
GGTG

FIG. 11

13705.2

TGGGGCGGAAA⁷GAAGCCAAGGCCAAGGAGCTGGTGGCGGCAGCTGCAGCTGGAGGCCGAG
GAGCAGAGGAAGCAGAAGAAGCGGCAGAGTGTGTGGGGCCTGCACAGATACCTTCACTTG
CTGGATGGAAATGAAAATTACCCGTGTCTTGTGGATGCAGACGGTGATGTGATTTCTTCC
CACCAATAACCAACAGTGAGAAGACAAAGGTTAAGAAAACGACTTCTGATTTGTTTTGG
AAGTAAACAAGTGCCACCAGTCTGCAGATTTGCAAGGATGTGATGGATGCCCTCATTCTGAA
AATGGCAAGAAATGAAAAAGTACACTTTAGAAAAATAAGAGGAAGGATCACTCTCAGAT
ACTGAAGCCGATGCAGTCTCTGGACAACCTCCAGATCCCACAACGAATCCCAGTGCTGGA
AAGGACGGGGCCCTTCTTCTGGTGGTGGAAACANGTCCCGGTGGTGGATCTTGAANGGAA
CCTGAANGTGGTGTACCCCGTCCAAGGCCGACCTTGGCCAC

13707.4

TCCCGCGCTCGCAGGGCNCGTGCCACCTGCCYGTCCGCCCGCTCGCTCGCTCGCCCGCCGC
GCCCGCTGCCGACCGYCAGCATGCTGCCGAGAGTGGGCTGCCCGCGCTGCCGCTGCCG
CCCGCGCGCTGCTGCCGCTGCTGCCGCTGCTGCTGCTGC

13708.1&2

GGCGGGTAGGCATGGAACTGAGAAGAACGAAGAAGCTTTCAGACTACGTGGGGAAGAAT
GAAAAAACCAAAAATTATCGCCAAGATTCAGCAAAAGGGACAGGGAGCTCCAGCCCGAGA
GCCTATTATTAGCAGTGAGGAGCAGAAGCAGCTGATGCTGTACTATCACAGAAGACAAGA
GGAGCTCAAGAGATTGGAAAGAAAATGATGATGCCTATTTAAACTCACCATGGGCGGA
TAACACTGCTTTGAAAAGACATTTTCATGGAGTGAAAGACATAAAGTGGAGACCAAGATG
AAGTTCACCAGCTGATGACACTTCCAAAGACATTAGCTCACCT

13709.1

TCTGAAGGTTAAATGTTTTCACTATAATACCGATAATGRTAAACACCTATAGCATAGAGTTG
TTTGAGATTAAATGAGATAATACATGTAAAATTATGTCCCTGGCATAACAGCAAGATTGTTG
TTGTTGTTGATGATGATGATGATGATGATGATAATATTTTCTATCCCCAGTGCACAACCTGCTTG
AACCTATTAGATAATCAATACATGTTTTCTTGAAGTGAATCAATTTCCCCATGTTGTCTGAC
TGATGAAGCCCTACATTTCTTCTAGAGGAGATGACATTTGAGCAAGATCTTAAAGAAAAT
CAGATGCCCTTACCTGACCACTGCTTGGTGATGCCATGGCACTTTGTACATCTCTCCATTAG
CTCTCATCTCACCAGCCCATCATTATTGTATGTGCTGCCCTTCTGAAGCTTGCAGCTGGCTAC
CATCMGGTAGAATAAAAAATCATCTTTTCAATAAAATAGTGACCCTCCTTTTTTATTGCAATTT
CCCAAAGCCAAGCACCGTGGGANGGTAG

FIG. 1J

13718.2

AAACTGGACCTGCAACAGGGACATGAATTTACTGCARGGTCTGAGCAAGCTCAGCCCCTCT
ACCTCAGGGCECCACAGCCATGACTACCTCCCCCAGGAGCGGGAGGGTGAAGGGGGCCTG
TCTCTGCAAGTGGAGCCAGAGTGGAGGAATGAGCTCTGAAGACACAGCAGCCAGCCTTCT
CGCACCAGCCAAGCCTTAACTGCCTGACCCTGAACCAGAACCCAGCTGAACTGCCCC
TCCAAGGGACAGGAAGGCTGGGGGAGGGAGTTTACAACCCAAGCCATTCCACCCCCTCCC
CTGCTGGGGAGAATGACACATCAAGCTGCTAACAATTGGGGGAAGGGGAAGGAAGAAAA
CTCTGAAAACAAAATCTTGT

13722.3

CATGCGTTTCACCACTGTTGGCCAGGCTGGTCTCGAACTCCTGGCCTCAAGCAATCCACCC
GCCTCAGCCTCCAAAAGTGGTGGGATTACAGATGTGAGCCATGGCACCATGCCAAAAGGC
TATATTCCTGGCTCTGTGTTTCCGAGACTGCTTTAATCCCAACTTCTCTACATTTAGATTA
AAAAATATTTTATTCATGGTCAATCTGGAACATAATTACTGCATCTTAAGTTTCCACTGAT
GTATATAGAAGGCTAAAGGCACAATTTTTATCAAACTAGTAGAGTAACCAAACATAAAA
TCATTAATTACTTTCAACTTAATAACTAATTGACATTCTCAAAGAGCTGTTTTCAATCCT
GATAGGTTCTTTATTTTTCAAATATAATTTGCCATGGGATGCTAATTTGCAATAAGGGCG
ATAATGAGAATACCCCAAACCTGA

13722.4

GTTGGACCCCCAGGGACTGGAAGACACTTCTTGCCCGAGCTGTGGCGGGAGAAGCTGAT
GTTCTTTTTTATATGCTTCTGGATCCGAAATTCATGAGATGTTTGTGGGTGTGGGAGCCAG
CCGTATCAGAAATCTTTTTAGCGAAGCAAAGGGCAAATGCTCCTTGTTATATTTATTGAT
GAATTAGATTTCTGTTGGTGGGAAGACAAATGAATCTCCAATGCCATCCATATCAAGGCAGA
CCATAAATCAACTTCTTGCTGAAATGGATGGTTTTAAACCCCAATGAAGGAGTTATCATAAT
AGGAGCCACAAACTTCCCAGAGGCAATTAGATAATGCTTAATACCGTCTGTTGTTTGA
CATGCAAGTTACAGTTCCAAGGTCAGATCTAAAAGGTGGAACAGAAATTTTGAAATGGTA
TCTCAATAAAAAATAAGTTTGATCAATCCCGTTGATCCAGAAATTATAGCCTCGAGGTACTG
GTGGCTTTTCCCGAAGCAGAGTTGGGAGAAATCTT

13724-13698-13748

GCCTACAACATCCAGAAAGAGTCTACCTTGCACCTGGTCTCGTCTCAGAGGTGGGATGC
AGATCTTCTGTGAAGACCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCGACTGACA
CCAATGAGAACGTCAAAGCAAAGATCCARGACAAGGAAGGCRTYCCTCCTGACCAGCAGA
GTTTGATCTTTCCCGGAAGCAGCTGGAAGATGGDCCGACCCTGTCTGACTACAACATCC
AGAAGAGTCTYACCTTGCACCTGGTCTCTCGTCTCAGAGGTGGGATGCARATCTTCTGTGA
AGACCTGACTGGTAAGACCATCACTCTGAGGTGGAGCCCCAGTGACACCATCGAGAAATG
TCAAGGCAAAAGATCCAAGATAAGCAAGCCATCCCTCCTGATCAGCAGAGGTTGATCTTTG
CTGGGAAACAGCTGGAAGATGGACCCACCTGTCTGACTACAACATCCAGAAAGAGTCCA
CTCTGCACTTGGTCTGCGCTTCAAGGGGGGTCTAAGTTTCCCTTTTAAGGTTTCMAC
AAATTTCAATTGCACTTTCTTTCAATAAAGTTGTTGCATTCCC

FIG. II

13730.1

GAACTGGGGCCCTGAGCCCAAGTCATGCCTTGTGTCCGCATCTGCCGTGTCACCTCTGKCC
TGCCCCCTACCCCTCCCTCCTGGTCTTCTGAGCCAGCACCATCTCCAAATAGCCTATTCCTT
CCTGCAAAATCACACACACATGCGGGCCACACATACCTGCTGCCCTGGAGATGGGGAAGTA
GGAGAGATGAATAGAGGGCCATACATTGTACAGAAGGAGGGGCAGGTGCAGATAAAAGC
AGCAGACCCAGCGGCAGCTGAGGTGCATGGAGCACGGTTGGGGCCGGCATTGGGCTGAGC
ACCTGATGGGCCCTCATCTCGTGAATCCTCGAGGCAGCGCCACAGCAGAGGAGTTAAGTGG
CACCTGGGGCCGAGCAGAGCAGGAGACTGAGGGTCAGAGTGGAGGCTAAGCTGCCCTGGA
ACTCCTCAATCTTGCCCTGCCCCCTAGTATGAAGCCCCCTTCTGCCCTACAATTCCTGA

13732.1

ATGGATCTTACTTTGCCACCCAGGTTGGAGTGCAGTGTGCAATCTTGGCTCACTGCAGCC
TTAACCTCCCAGGCTCAAGCTATCCTCCTGCCAAAGCCTTCCACATAGCTGGGACTACAGG
TACACNGCCACCACACCCAGCTAAAAATTTTGTATTTTTGTAGAGACGGGATCTCGCCAC
GTTGCCACAGGCTGGTCCCATCCTGACCTCAAGCAGATCTGCCACCTCAGCCCCCAACGT
GCTAGGATTACAGGCGTGAGCCACCCGACCCAGCCTTTGTTTTGCTTTTAATGGAATCACC
AGTCCCTCCGTGTCTCAGCAGCAGCTGTGAGAAATGCTTTGCATCTGTGACCTTTATGA
AGGGGAACCTCCATGCTGAATGAGGGTAGGATTACATGCTCCTGTTTCCCGGGGGTCAAG
AAAGCCTCAGACTCCAGCATGATAAGCAGGGTGAG

13732.2

ATAGGGGCTTTAAGGAGGGGAATTCAGGTTCAATGAGGTGTAAGGCCAGGGCTCTTATCC
AGTAAGACTGGGGTCTTAGATGAGAAAGAGACACCCGAGGTCTTCTCTGCGGTGTG
AGGATGCATCAAGAAGCGGGCCCTCTGCAAGCGAAGGAGAGGGCCGACCCAGAAACCGAC
ACCTTCATCTTGGACTTCCAGCCTCTAGAACTGAGAAAATAACTGTCTGTTGGTTAAGCCA
CCCAGTTTGTAGTATCTCTTATGGCTTCCTAAGCAGACTAACAAACAAACACCCAAAATT
A.ACTGATGGCTTCGCTGTCTCTGTA.A.AAATGCTATGAGAGAACTTTCACTCACTGTTTT
GCAGTTTCTCCCTCAGTCCCTGCTCTTCTTCTCACATAATCCCAATTTCAATTTATAGTTC
ATGGCCCAAGGCAGAGTCATTCATCAGGGCATCTCCTGAGCTAAACCAGCACCTGCTGTGCT
CACTTCTTGACTGGCTGCTCATCATCAGCCCTCTTGCAGAGATTCATTTCTCCCGTGGCA
GGTACTTCACGCACCAAGCTCA

FIG. 1M

13735.1

GGATAATGAAGTTGTTTTATTTAGCTTGGACAAAAAGGCATATTCCTCTATTTTCTTATACA
ACAAATATCCCCAAAAATAAAGCAAGCATATATATCTTGAATGTGTAATAATCCAGTGATA
AACAAGAGCAGTACTTTAAAAAGAAAAAAAATATGTATTTCTGTCAGGTTAAAAATGAGAA
TCAAAACCAATTTACTCTGCTAACTCATTTATTTTGGCTTTCTTTTGGTTAAGAGAGGCAAT
GCAATACACTGAAAAAGGTTTTATCTTATCTGGCATTGGAATTAGACATATTCAAACCCC
AGCCCCCATTTCCAAACTTTAAGACCACAAAACAAGTAATTTACTTTTCTGAACATTGGTTTT
TTCTGGAAAAATGGGAATTATAAAATAGACTTTGCAGACTCTTATGAGATTAAATAAGATA
ATGTATGAAAATCTTTCTTTCTTTTACTTTCTTTTCTTTTGGAGATGGAGTCTCACCCCGT
CACCCAGGCTGGAGTACAGTG

13735.2

CCACTGCACTCCAGCCTGGGTGACGGAGTGAGACTCTGTCTCAAAAAACAAACAAACAA
ACAAACAAAAAACTGAAAAGGAAATAGAGTTCTCTTTCTCATATATGAATATATTATTT
CAACAGATTGTTGATCACCTACCATATGCTTGGTAATTTGTTCTAATTGCTGGGGATACAGCA
AGAGGTTCTGCAGAACTTCATGGAGCATGAAAGTAAATAAACAAAGTTAATTTCAAGGCC
AGGCATGGTTGCTCACACCTTTAGTCCCAGCCTTTGGGAGGCTGAGGCAGGTGGATCACT
TGGGCCCAGGAGTTC.AAGGCTGCAGTGAGCCAAGATTGTGCCACTACTCTCCAGGCTGGG
CAACAGAGCAAGACCCTGTCTCAGGGGGAACAAAAAGTTAATTTAGATTTTGTAAAGTG
CTGTAAGGAAGTAAATAGCTTCATATTCAAGAGAGCACCTGAAGGCCAGGCGTGGTGGC
TCACGCCTGTGGTCTAACGCTTTGGGAAGCCCGAGCGGGCGGATCACAAGGTCAGGAGAA
TTTTGGCCAGGCATGGTG

13736.1

AGAATCCATTTATTGGGTTTTAACTAGTTACACAACCTGAAATCAGTTTGGCACTACTTTA
TACAGGGATTACGCCTGTGTATGCCGACACTTAAATACTGTACCAGGACCCTGCTGTGCT
TAGGTCTGTATTCACCTATTCAGCATGTAGATACTAAAAATATACTGTAGTGTTCCTTTAA
GGAAGACTGTACAGCGTGTGTGCAAGATGACATTCACCAAATTTGTGAATTAATTTCAACCC
AGAAGATACCTTTCACTCTATAAACTGTGTATAGCCAAACATGTGGTGTAGCATTGAGAG
ATGCACACAAAAATGTTTACATAAAAGTTGAGACATTTCTAATGATAAGTGAAGTCAAAAAA
AAAAAAACCCACATCTCAAATTTGTAAACAAGATAAAGAAAATAATTTAAAAACACAAA
AAATGGCATTCAAGTGGGTACAAAGCC

13737.1&2

CAAATAATTAATATAAAATCTTTGAAACAAGTTTCAGAKGAAATAAAAAATCAAAGTTTGCAA
AAACGTGAAGATTAACTTAAATGTCAAATAATTCCTCATTTGCCCCAAATCAGTAATTTTTTTA
TTCTATGCAAAAGTATGCCCTTCAAACCTGCTTAAATGATATATGATATGATACACAAACCA
GTTTTCAAATAGTAAAGCCAGTCACTTTGCAATTTGTAAGAAATAGGTAAAAGATTATAAG
ACACCTTACACACACACACACACACACACACACAGTGTGCACGCCCAATGACAAAAAAC
AATTTGGCCTCTCCTAAAAATAAGAACATGAAGACCCTTAATTTGCTGCCAGGAGGGAACAC
TGTGTACCCCTCCCTACAATTCAGGTACTTTCTTTAATCCAATAGCAAATCTGGGCATAT
TTGAGAGGAGTCAATCTGACAGCCACGTTGAAATCCTGTGGGGAACCAATTCATGTCCACC
CACTGGTGGCCTGAAAAAATGCCAATAATTTTCGCTCCCACTTCTGCTGCTGTCTTTCCA
CATCCTCACATAGACCCACAGACCGCTGGCCCCCTGGCTGGGCATCGCATTTGCTGGTAGAGC
AAGTCATAGGTCTCGTCTTTGACGTACAGAAAGCGATACACCAAATTCCTGGTGGTCAAT
TGTCATAACCAAG

FIG. 1N

TTTGACTTTAGTAGGGGTCTGAACTATTTATTTTACTTTGCCMGTAAATATTTARACCYTATA
TATCTTTCATTATGCCATCTTATCTTCTAATGBCAAGGGAACAGWTGCTAAMCTGGCTTCT
GCATTWATCACATTAATAAATGGCTTCTTGGAAAATCTTCTTGATATGAATAAAGGATCTT
TTAVAGCCATCATTTAAAGCMGGNTTCTCTCCAACACGAGTCTGCTASGGGGGGKGAGCT
GTGAACTCTGGCTGAAGGCTTTCCCATACACTGCAATGACMTGGTTTCTGACCAGBGTG
AGTTA

AGAGAAGCCCCATAAAATGCAATCAGTGTGGGAAGGCCTTCAGTCAGAGCTCAAGCCTTTT
CCTCCATCATCGGGTTCATACTGGAGAGAAACCCTATGTATGTAATGAATGCGGCAGAGCC
TTTGGTTTTAACTCTCATCTTACTGAACACGTAAGGATTACACAGGAGAAAAACCCTATG
TTTGTAAATGAGTGGCGCAAAAGCCTTTCTGTCGGAGTTCCACTCTTGTTTCAGCATCGAAGAGT
TCACACTGGGGAGAAGCCCTACCAGTGGTGAATGTGGGAAAGCTTTCAGCCAGAGCTC
CCAGCTCACCCCTACATCAGCCGAGTTTCACACTGGAGAGAAGCCCTATGACTGTGGTGAAGT
TGGGAAGGCCTTCAGCCGGAGGTCAACCCCTATTACAGCATCAGAAAGTTACAGCGGAGA
GACTCGTAAGTGCAAGAAAACATGGTCCAGCCTTTGTTTCATGGCTCCAGCCTCACAGCAGAT
GGACAGATTCCCCTGAGAGAAAGCACGGCAGAACCCTTAAACCATGGTGCAAAATCTCAT
CTGCGCTGGACAGTTC

GAGACAGGCTCTCACTTTGTCAACCCAGGCTCGAATGTCAGTGGTGGGATCTTACGTAGCTCA
CTGCAGCCCTGACCTCTCTGCACTCAAACAATTCTCTGCTCAGCCTGCAAGTAGCTGGG
ACTGTGGGTGCATGCCACCAATGCCCTGCTAACTTTTGTAGTTTTGTAAAAGATGGGGTTTT
GCCATGTTGCACATCCTGGTGTGTGAACCTCTGAGCTCAAACGATCTCCCCACCTCGGCCTC
CCAGAAATGTTGGGATTACAGGGGTAAACCAACCGCCCTGGCCCCATTAGGGTAATCTTAGC
ATCCACTTGCTCACTGAGATTAATCATAAAGAGATGATAAGCACTGGAAGA.AAAAAATTTTT
ACTAGCCTTTGGGATATTTTCTCTTTTACCTTTATACAGGATGACAGGATTGGATCTTTAGTTTTT
CTTTAACTGATAATAAAACATTTGAAAGCAAAATAAGTTTACCTGAGATTCACAGAGATAAC
CGGCATCACTCCCTTGCTCAAATCCAGTCTTTACCACATCAATTATTTTCACAGGTCGAGGA
TAAAGGCTTTAGTCTGCTTTGGCACTTTTTCTTCCACTTTTTTGTAAACCTGTGTGCTGACA
AATGGAATTGACAGCGTATGCCATGACTATCCATTTGTGAGGCATACGCTGTCAAATTTT
CCACCAATCCCTTGTCTCTTTGGAGAGATCTTCTTATCAGCTAGTCTTTGGCAAAGTA
ATTGCAACTTCTTCTAGGTAATCTAATGTCCTTCCACTGTGGAACCCCTGGGACCAGGA
CTAAAACCTCCAG

[illegible]

BNSDOCID: <WO_____0036107A2_1_>

13742.1

AAACATTGAGATGGAATGATAGGGTTTCCCAGAATCAGGTCCATATTTTAACTAAATGAA
AATTATGATTTATAGCCTTCTCAAATACCTGCCATACTTGATATCTCAACCAGAGCTAATTT
TACCTCTTTACAAAATTAATAAGCAAGTAACTGGATCCACAATTTATAATACCTGTCAATT
TTTTCTGTATTAAACCTCTATCATAGTTTAAGCCTATTAGGGTACTTAATCCTTACAAATAA
ACAGGTTTAAATCACCTCAATAGGCAACTGCCCTTCTGGTTTTCTTTTACTAAACAAT
CTGAATGCTTAAGATTTTCCACTTTGGGTGCTAGCAGTACACAGTGTACACTCTGTATTCC
AGACTTCTTAAATTATAGAAAAAGGAATGTACACTTTTTGTATTCTTTCTGAGCAGGGCCG
GGAGGCAACATCATCTACCATGGTAGGGACTTGTATGCATGGACTACTTTA

14351.1

ACTCTGTGCCCCAGGCTGGAGCCCCABTGGMGGGATCTCGACTCCCTGCAAGCTMCGCCTC
ACAGGWTGATGCCATTCTCCTGCCCTCAGCATCTGGAGTAGCTGGGACTACAGGCGCCAGC
CACCATGCCAGCTAATTTTT

14351.2

ACCTTAAAGACATAGGAGAAATTAATACTGGGAGAGAAAGCTTACAAATGTAAGGTTTCTG
ACAAGACTTGGGAGTGATTCACACCTGGAAACAACATACTGGACTTCACACTGGABAGAAA
CCTTACAAGTGTAATGAGTGTGGCAAGCCCTTGGCAAGCAGTCAACACTTATTCACCATC
AGGCAATTCA

14354.2

AGTCAGGATCATGATGGCTCAGTTTCCACAGCGATGAATGGAGGGCCAAATATGTGGGC
TATTACATCTGAAGAACCTACTAAGCATGATAAACAGTTTGATAACCTCAAACCTTCAGGA
GGTTACATAACAGGTGATCAAGCCCGTACTTTTTCTACAGTCAGGTCTGCCGGCCCCGG
TTTTAGCTGAAATATGCCCCCTTATCAGATCTGAACAAGGATGGGAAGATGGACCAGCAAG
AGTTCTCTATAGCTATGAAGCTCATCAAGTTAAAGTTGCAGGGCCAACAGCTGCCCTGTAGT
CCTCCCTCCTATCATGAACAACCCCGCTATGTTCTCTCCACTAATCTCTGCTCGTTTTGGGA
TGGGAAGCATGCCCAATCTGTCCATTATCAGCCATTGCCCTCCAGTTGCACCTATAGCAAC
ACCCTTGTCTTCTGCTACTTCAGGGACCAGTATTCCTCCCTAATGATGCCTGCT

14354.1

CTTTCGATTTCCTTCAATTTCTCAGTTTCATTTTATGAAGTTGTTCAAGGGCTAACTGCTG
TGTATTATAGCTTTCTCTGAGTTCCCTCAGCTGATTGTTAAATGAATCCATTTCTGAGAGCT
TAGATGCAGTTTCTTTTCAAGAGCATCTAAATGTTCTTTAAGTCTTTGGCATAATCTTCC
TTTTCTGATGACTTTCTATGAAGTAAACTGATCCCTGAATCAGGTGTGTTACTGAGCTGCAT
GTTTTTAATTTCTTTCTTTAATAGCTGCTTCTCAGGGACCAGATAGATAAGCTTATTTTGAT
ATTCTTAAAGCTCTTGGTGAAGTTGTTTCCAATTCATAATTTCCAGGTACACTGGTTATCC
CAAATCTCT

FIG. 1P

16431.1.2

GTGGAGGTGAAACGGAGGCAAGAAAGGGGGCTACCTCAGGACCGAGGGACAAAGGGGGC
GTGAGGCACCTAGGCCGCGGCACCCCGGCGACAGGAAGCCGTCTGAACCGGGCTACCGG
GTAGGGGAAGGGCCCGCGTAGTCTCGCAGGGCCCCAGAGCTGGAGTCGGCTCCACAGCC
CCGGCCCGTGGCTTCTCACTTCCTGGACCTCCCCGGCGCCCGGGCTGAGGACTGGCTCG
GCGGAGGGGAGAAGAGGAACAACAGACTTGAGCAGCTCCCCGTTGTCTCGCAACTCCACTGCC
GAGGAACCTCTCATTTCTTCCCTCGCTCCTTACCCCCACCTCATGTAGAAAGGTGCTGAA
GCGTCCGGAGGGAAGAAGAACCTGGGCTACCGTCTGGCCTTCCCMCCCCCTTCCCCGGG
CGCTTTGGTGGGCGTGGAGTTGGGCTTGGGGGGTGGGTGGGGGTTCTTTTTTGGAGTGCT
GGGGAACTTTTTCCCTTCTTCAGGTACGGGAAAGGGAATGCCCAATTCAGAGAGACAT
GGGGGCAAGAAGGACGGGAGTGGAGGAGCTTCTGGAACCTTTCAGCCGTATCGGGAGG
CGGCAGCTCTAACAGCAGAGAGCGTCACCGCTTGGTATCGAAGCACAAGCGGCATAAGTC
CAAACTCCAAAGACATGGGGTGGTGAACCCCGAAGCAGCATCCCTGGGCACAGTTAT
CAAACCTTTGGTGGAGTATGATGATATCAGCTCTGATTCCGACACCTTCTCCGATGACATG
GCCTTCAAACCTAGACCGAAGGGAGAACGACGAACGTCTGGATCAGATCGGAGCGACCGC
CTGCACAAACATCGTCACCACCAGCACAGGCGTCCCCGGGACTTACTAAAAGCTAAACAG
ACCG

16432-1

GACATGTTTGCCTGCAGGGGACCAGAGACAATGGGATTAGCCAGTGCTCACTGTTCTTTAT
GCTTCCAGAGAGGATGGGGACAGCTCTCAGGTACAGATCCAGGCTGAGAAGGCCATGCTG
GTTGGGGGCCCCCGGAAGCACGGTCCCGATCCTCCCTGGCATCAGCGTAGACCCGCTGCTC
AGGCTTGGGGTACCAAACCTCATGCTCTGTACTGTTTTGGCCCCATCGGTGAGAGGAAAAC
CTAGAAAAAGATTGCTCGTCTTAAGGAATCAGCTGCCCGCTCATCCTCCGCATCCAATGCT
GGTGACAACATAATCCCTCTCCAGGACACAGACTCGGTGACTCCACACTGGGCTGACTGG
CCTCTGGAGGCTCGTGCCCTAAGCCAGGGCTCCGTAAAGGCTGATCGGCTGAACCTGGGTGG
GGTGAGGGTTTTCTGACCCTTCGCTTCCCATCCCATAAACCGCTGTCAATGAGCTCACACTGT
GGTCA

16432-2

GATGGCATGGTCTGTTGCTAAATGTGCTCTGCGGATGGAGCACTTCCTCCTGTGAGCCCAGG
GGACCCGCTGTCCCTGGAGCTTGGGGCAAGGAGGGAAGAGTGATACCAGGAAGGTGGG
GCTGCAGCCAGGGCCAGAGTCAGTTACGGGAGTGGTCTCGGCCCTCAAAGCTCCTCCG
GGGACTGCTCAGGAGTGATGGTCCCTGGAGTTTGGCCCCAACTTCCCTGGCCACCCTGGAA
GGTGCCTGGCTGCTCCAGCCCTTAGGCTGGGCTGATGGGTTTCTCCAGGACACAAGTATC
ATTAAGCCACCCTCTCCTCAGCTTGTACGGCCCGACATGTGGGACAGGCTGTGCTCACA
CCCCCTGGCTGCCCTGCCCTCCATCAGGAGGAGCCAGTGGAAACCTTCGGAAAGCTCCAG
CATCTCAGCAGCCCTCAAAGTCTCTCTGGGGCAAGCTCTGGTTCTCCTGACTGGAGGTCA
TCTGGGCTTGGCCTGCTCTCTCCG

17184.3

TAAAAAAGTGTAACAAGGTTTATTAGACTTTCTTCATGCCCCCAGATCCAGGATGTCTA
TGTAACCGTTATCTTACAAAGAAAGCACAATATTGGTATAAACTAAGTCAGTGACTTGC
TTAACTGAAATAGCGTCCATCCAAAGTGGGTTAAGGTAAAACTACCTGACGATATTGGC
GGGGATCCTGCAGTTTGGACTGCTTGGCGGTTTGTCCAGGTTCCGGGTCTGTTCTTGGC
ACTCATCGGGACAGGCATCCTGCTGCTGTGTGGGGCCCCGCTGGAGCCCTACGTGAAGCT
GAAGGTATCGACCTAGGGGGCTTAGGGCAGTGGGACCTTCATCCGGAACCTAACAAAGGG
TCGGGACAGCCCTCTTGGGCTATGTGGC

FIG. 1Q

17184.4

CAAGCGTTCCTTTATGGATGTAAATTCAAAACAGTCATGCTGAGCCATCCCCGGGCTGACAGT
CACGTTWAAGACACTAGGTGCGGCGCCACAGTGCCACCCAAGGAGAAGAAGAATTTGGA
ATTTTTCCATGAAGATGTACGGAAATCTGATGTTGAATATGAAAATGGCCCCCAAATGGAA
TTCCAAAAGGTTACCACAGGGGCTGTAAAGACCTAGTGACCCTCCTAAGTGGGAAAGAGGA
ATGGAGAAATAGTATTTCTGATGCATCAAGAACATCAGAAATATAAACTGAGATCATAATG
AAGGAAAAATCCATATCCAATATGAGTTTACTCAGAGACAGTAGAAACTATTCCCAGG

17185.1

TAGGAATAACAAATGTTTATTCAGAAAATGGATAAGTAATACATAATCACCCCTTCATCTCTT
AATGCCCCCTTCTCTCTCTGACACAGGAGACACAGATGGGTAACATAGAGGCATGGGAA
GTGGAGGAGGACACAGGACTAGCCACCCACCTTCTCTTCCCCGGTCTCCCAAGATGACTGCT
TATAGAGTGGAGGAGGCAAAACAGGTCCCCCTCAATGTACCAGATGGTCACTATAGCACCA
GCTCCAGATGGCCACGTGGTTGACGCTGGACTCAATGAACTCTGTGACAACCAGAAGAT
ACCTGCTTTGGGATGAGAGGGAGGATAAAGCCATGCAGGGAGGATATTTACCATCCCTAC
CCTAAGCACAGTGCAAGCAGTGAGCCCCCGGCTCCCACTGAAAAACCAAGGCCTAC
TGNCCTTTTGGATGCTCTCTTGGGCCACG

17183.2

AAGCCTCCTGCCCTGGAAATCTGGAGCCCTTGGAGCTGAGCTGGACGGGGCAGGGAGGG
GCTGAGAGGCAAGACCGTCTCCCTCTGCTGACGCTGCTTCCCCAGCAGCCACTGCTGGGC
ACAGCAGAAAACGCCAGCAGAGAAAATGGGAGGGGAGAGTCTTAGCCCTGGAGCTGAGG
CTGCCCTCTGGGCTGACCCGCTGCTCTACCTGGCCAGAACTGGGGTTGGCATCTGGCATCC
ATTTGAGGCCAGGGTGCAGGAAAAGGGAGGCCCAACAGAGCAAAAACCTATTCTGCTGTGAC
AACACAGCCCTTGTCCACGCCAGCCTAAGTGCAGGGCAGCGTGATGAAGTCAGGCAGCCAG
TCGGGGAGGACGAGGTAATCAGCAGCAATGTACCTTGTAGCCTATGCGCTCAATGGCC
CGGAGGGGCAGCAACCCCCCGCACAGCTCAGCCAACAGCAGTGCCTCTGCAGGCACCAAG
AGAGCGATCATGGACTTGAGCCCGCTCTT

17190.1

GTTTGGCAGAAGACATGTTTAAATAACAATTTTCAATTTAAAAATACAGCAACAATTTCTCT
ATCTGTCCACCATCTTGCCCTTGCCCTTCTGCGGCTGAGGCAGACAAAAGGAAGGTAATGA
GGTTAGGGCCCCCAGGCGGGCTAAGTGCTATTGGCCTGCTCCTGCTCAAAGAGAGGCCATA
GCCAGCTGGGCACGGCCCCCTAGCCCTCCAGGTTGCTGAGGCGGCAGCGGTGGTAGAGT
TCTTCACTGAGCCGTGGGCTGCAGTCTGSCAGGGAGAATTTCTGCCACCAGCCCTGGCTCTA
CGGCCGAAAGAGGTGGAGCCCTGAGAACGGAGGAAAACATCCATCACCTCCAGCCCT
CCAGGGCTTCTCTCTCTTCTGGGCTGCCAGTTACCTGCCAGCCGGGCTCGGGCCGCCAG
GTAGTCAGCCTTGTAGAAGCAGCCCTCGGCAGAACCTGCCGGTCAAAATCTCCCCGCTATA
GGAGCCCCCGGGAGGGGTCAGCAC

FIG. 1R

17190.2

CAAGTTGAACGTCAGGCTTGGCAGAGGTGGAGTGTAGATGAAAACAAAGGTGTGATTATG
AAGAGGATGTGAGTCCTTTGGGTGTAGGAGAGAAAGGCTGTTGAGCTTCTATTTCAAGAT
ACTTTTACCTGTGCAAAAAGCACATTTTCCACCTCCTTCTCATGGCATTGTGTAAAGGTGAG
TATGATTCTTATTCATCTGCATTTTAGAGGTGAAGAATAACGTACAAGGGATTCAAGTGAT
TAGCAAGGGGACCCCTCACTAAGTGTTGATGGAGTTAGGACAGAGCTCAGCTGTTTGAATCT
CAGAGCCCAGGCAGCTGGAGCTGGGTAGGATCCTGGAGCTGGCACTAATGTGAGGTGCAT
TCCCTCCAACCCAGGCTCAGATCCGGAACCTGACCGTGCTGACCCCCGAAGGGGAGGCAG
GGCTGAGCTGGCCCGTTGGGCTCCCTGCTCCTTTCACACCACACTCTCGCTTTGAGGTGCTG
GGCTGGGACTACTTCACAGAGCAGC

17191.2&89.2

TGGCCTGGGCAGGATTGGGAGAGAGGTAGCTACCCGGATGCAGTCCTTTGGGATGAAGAC
TATAGGGTATGACCCCATCATTTCCCCAGAGGTCTCGGCCTCCTTTGGTGTTGAGCAGCTG
CCCCTGGAGGAGATCTGGCCTCTCTGTGATTTCACTGTGCACACTCCTCTCCTGCCCTC
CACGACAGGCTTGCTGAATGACAACACCTTTGCCAGTGCAAGAAGGGGGTGCGTGTGGT
GAACTGTGCCCCGTGGAGGGATCGTGACGAAGGCGCCCTGCTCCGGGCCCTGCAGTCTGG
CCAGTGTGCCGGGGCTGCACTGGACGTGTTTACGGAAGAGCCGCCACGGGACCGGGCCTT
GGTGGACCATGAGAATGTCATCAGCTGTCCCCACCTGGGTGCCAGCACCAAGGAGGCTCA
GAGCCGCTGTGGGGAGGAAATTGCTGTTCAAGTTCGTGGACATGGTGAAGGGGAAATCTCT
CACGGGGGTTGTGAATGCCCAGGCCCTT

FIG. 1S

AGCCAGATGGCTGAGAGCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCCACAG
CGATGAATGGAGGGCCAAATATGTGGGCTATTACATCTGAAGAACGTACTAAGCATGATA
AACAGTTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCGTACTTT
TTTCTACAGTCAGGTCTGCCGGCCCCGGTTTATAGCTGAAATATGGGCCTTATCAGATCTG
AACAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
AAGTTGCAGGGCCAAACAGCTGCCTGTAGTCCTCCCTCCTATCATGAAACAACCCCTATGT
TCTCTCCACTAATCTCTGCTCGTTTGGGAAGGCAATGCCCCAATCTGTCCATTTCATCAG
CCAATTGCCTCCAGTTGCACCTATAGCAACACCCTTGTCTTCTGCTACTTCAGGGACCAGTAT
TCCTCCCTAATGATGCCTGCTCCCTAGTGCCTTCTGTTAGTACATCCTCATTACCAAATG
GAACTGCCAGTCTCATTACAGCCTTTATCCATTCTTATTCTTCTTCAACATTGCCTCATGCA
TCATCTTACAGCCTGATGATGGGAGGATTTGGTGGTGTAGTATCCAGAAGGCCAGTCTC
TGATTGATTTAGGATCTAGTCAACTTCTCAACTGCTTCCCTCTCAGGGAACTCACCT
AAGACAGGGACCTCAGAGTGGGCAGTTCCTCAGCCTTCAAGATTAAAGTATCGGCAAAAA
TTTAATAGTCTAGACAAAGGCATGAGCGGATCCTCAGGTTTTCAAGCTAGAAATGCCC
TTCTTCAGTCAAATCTCTCTCAAACCTCAGCTAGCTACTATTTGGACTCTGGCTGACATCGAT
GGTGACGGACAGTTGAAAGCTGAAGAATTTATTCTGGCGATGCACCTCACTGACATGGCC
AAAGCTGGACAGCCACTACCACTGACGTTGCCTCCCGAGCTTGTCCCTCCATCTTTCAGAG
GGGGAAGCAAGTTGATTCTGTTAATGGAACTCTGCCTTCATATCAGAAAAACACAAGAAG
AAGAGCCTCAGAAGAACTGCCAGTTACTTTTGAGGACAAACGGAAAGCCAACTATGAAC
GAGGAAACATGGAGCTGGAGAAGCGACGCCAAGTGTGATGGAGCAGCAGCAGAGGGGAG
GCTGAACGCCAAAGCCCAGAAAGACAAGGAAGAGTGGGAGCGGAAACAGAGAGAAGTGC
AAGAGCAAGAATGGAAGAAGCAGCTGAGTTGGAGAAACGCTTGGAGAAACAGAGAGAG
CTGGAGAGACAGCGGGAGGAAGAGAGAGGAGATAGAAAGACGAGAGGCAGCAA
AACAGGAGCTTGAGAGACAACGCCGTTTGAATGGGAAAGACTCCGTCCGCAGGAGCTGC
TCAGTCAGAAGACCAGGCAACAAAGAGACATTCTCAGGCTGAGCTCCAGAAAGAAAAGT
CTCCACCTGGAAGCTGGAAGCACTGAAATGGAAGAACATCAGCAGATCTCAGGCAGACTACAA
GATGTCCAAATCAGAAAGCAAAACACAAAAGACTGAGCTAGAAGTTTTGGATAAAACAGTGT
GACCTGGAAATTAAGAAATCAAAACAACCTTCAACAAGAGCTTAAGGAATATCAAAATAAG
CTTATCTATCTGCTCCCTGAGAAGCAGCTATTAAACGAAAGAAATTAACAAATGCAGCTCA
GTAACACACCTGATTACGGGATCAGTTTACTTCATAAAAAAGTCATCAGAAAAGGAAGAAT
TATGCCAAAGACTTAAAGAACAAATAGATGCTCTTGAAGAAAGAACTGCATCTAAGCTCT
CAGAAATGGATTCAATTAACAAATCAGCTGAAGGAAGCTCAGAGAAAGCTATAATACACAGC
AGTTAGCCCTTGAACAACCTTCATAAAATCAAAAGCTGACAAATTGAAGGAATTCGAAAGAA
AAAGATTAGAGCAAAAAA

FIG. 2A

ATGGCAGTGACATTCACCATCATGGGAACCACTTCCCTTTTCTTCAGGATTCTCTGTAGTG
GAAGAGAGCACCCAGTGTTGGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCTAAAAAT
AATCAGTATCTCAGAGGGCTCTAAGGTGCCAAGAAGTCTCACTGGACATTTAAGTGCCAA
CAAAGGCATACTTTCCGAATCGCCAAGTCAAACTTTCTAACTTCTGTCTCTCTCAGAGAC
AAGTGAGACTCAAGAGTCTACTGCTTTAGTGCCAACACAGAAAACCTGGTGTTACCCAGA
AAAACAGGAGCAATTAGAAAATGGTTCCAATATTTCAAAGCTCCGCAAACAGGATGTGCTT
TCCTTTGCCCATTTAGGGTTTCTTCTTTTCTTTCTTTTATTAACCACTA

FIG. 2B

ATATCTAGAAGTCTGGAGTGAGCAAAACAAGAGCAAGAAACAAAAAGAAGCCAAAAGCAG
AAGGCTCCAATATGAACAAGATAAATCTATCTTCAAAGACATATTAGAAGTTGGGAAAAT
AATTCATGTGAACTAGACAAGTGTGTTAAGAGTGATAAGTAAATGCACGTGGAGACAAG
TGCATCCCCAGATCTCAGGGACCTCCCCCTGCCTGTCACCTGGGGAGTGAGAGGACAGGAT
AGTGCATGTTCTTTGTCTCTGAATTTTTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGC
CCCTGGAAAGTCTATCCCAACATACCACATCTTATATTCCACAAATTAAGCTGTAGTATG
TACCCTAAGACGCTGCTAATTGACTGCCACTTCGCAACTCAGGGGCGGCTGCATTTTAGTA
ATGGGTCAAATGATTCACTTTTTATGATGCTTCCAAAGGTGCCTTGGCTTCTCTCCCAACT
GACAAATGCCAAAGTTGAGAAAATGATCATAATTTTAGCATAAACAGAGCAGTCGGCGA
CACCGATTTTATAAATAAACTGAGCACCTTCTTTTTAAACAAACAAATGCGGGTTTATTTCT
CAGATGATGTTTCATCCGTGAATGGTCCAGGGAAGGACCTTTCACCTTGACTATAATGGCATT
ATGTCATCACAAGCTCTGAGGCTTCTCCTTTCCATCCTGCGTGGACAGCTAAGACCTCAGT
TTTCAATAGCATCTAGAGCAGTGGGACTCAGCTGGGGTGATTTGCCCCCATCTCCGGGG
GAATGTCTGAAGACAATTTTGTACCTCAATGAGGGAGTGGAGGAGGATACAGTGCTACT
ACCAACTAGTGGATAAAGGCCAGGGATGCTGCTCAACCTCCTACCATGTACAGGACGTCTC
CCCATTACAACCTACCCAATCCGAAGTGTCAACTGTGTCAGGACTAAGAAACCTGGTTTTG
AGTAGAAAAGGGCCTGGAAAGAGGGGAGCCAACAAATCTGTCTGCTTCTCATTAGTC
ATTGGCAAATAAGCATCTGTCTCTTTGGCTGCTGCCTCAGCACAGAGAGCCAGAACTCTA
TCGGGCACCAGGATAACATCTCTCAGTGAACAGAGTTGACAAGGCCTATGGGAAATGCCT
GATGGGATTATCTTCAGCTTGTGAGCTTCTAAGTTTCTTTCCCTTCATTCTACCCTGCAAG
CCAAGTTCTGTAAAGAGAAATGCCTGAGTTCTAGCTCAGGTTTTCTTACTCTGAATTTAGATC
TCCAGACCTTCTGGCCACAATTCAAATTAAGGCAACAAACATATACCTTCCATGAAGCA
CACACAGACTTTTGAAGCAAGGACAATGACTGCTTGAATTGAGGCCTTGAGGAATGAAG
CTTTGAAGGAAAAGAATACTTTGTTCCAGCCCCCTTCCCACACTCTTCATGTGTTAACCAC
TGCTTCTGGACCTTGGAGCCACGGTGACTGTATTACATGTTGTTATAGAAAAGTGAATTT
AGAGTTCTGATCGTTCAAGAGAAATGATTAAATATACATTTCTA

FIG. 2C

Flowchart Display										X	
Cell Exp	Probe 1	Exp	Probe 2	tit M/A (normal)	Fluor/Well	Probe 1	S/B	A%	Probe 2	S/B	A%
017	304A Ovary Tumor		272A Decidua: Cell	422406300 (420)	421G0196 (C:11)	2303	13.7	50	1430	2.0	50
11	315A Ovary Tumor		S7 Ovary H	42220626 (420)	421G0196 (C:11)	355	27	54	302	1.0	54
010	261A Ovary Tumor		S10 Skeletal muscle H	42240621 (420)	421G0196 (C:11)	1290	6.8	51	707	1.9	51
003	264A Ovary Tumor		S2 Pancreas H	42240629 (420)	421G0196 (C:11)	9590	44.0	62	1100	2.3	62
12	306A		S40	42240605 (420)	421G0196 (C:11)	510	3.8	50	610	2.0	50
047	265A Ovary Tumor		CT5 Heart H	42200624 (420)	421G0196 (C:11)	2305	14.0	53	409	2.2	53
14	525 Ovary Tumor		CT4 Bone Marrow H	42210619 (420)	421G0196 (C:11)	531	3.5	53	743	2.0	53
	301A		H	42240609 (420)	421G0196 (C:11)	1642	10.0	39	671	2.0	39
19	522 Ovary Tumor		CT9 Kidney H	42240627 (420)	421G0196 (C:11)	453	3.3	60	857	3.2	60
032	9405.1-P		9405.5-P	42270602 (420)	421G0196 (C:11)	1092	12.2	57	594	2.3	57
015	202A Ovary Tumor		334A Lung: Intestine H	42240622 (420)	421G0196 (C:11)	1408	7.5	55	965	2.2	55
11	5115		CT10	422C0604 (420)	421G0196 (C:11)	509	3.4	51	573	2.0	51
011	208A Ovary Tumor		CT12 Lung H	422N0625 (420)	421G0196 (C:11)	700	4.5	54	651	2.1	54
21	201A Ovary Tumor		S56 Stomach H	42240621 (420)	421G0196 (C:11)	625	4.6	46	1335	3.6	46
070	523 Ovary Tumor		S56 Spinal Cord H	422G0620 (420)	421G0196 (C:11)	3896	22.2	50	502	2.2	50
010	205A		270A	42200606 (420)	421G0196 (C:11)	2251	14.7	46	1256	2.0	46
10	0134		P2	42240601 (420)	421G0196 (C:11)	552	3.4	72	1028	2.3	72
056	305A Ovary T		S01 Fetal tissue	42240607 (420)	421G0196 (C:11)	8126	35.6	50	1449	2.0	50
35	263A Ovary Tumor		S73 Breast H	42240623 (420)	421G0196 (C:11)	439	3.2	61	1531	3.4	61
33	302A		CT19	42200610 (420)	421G0196 (C:11)	307	3.2	50	1270	2.1	50
040	206A		S27	42250603 (420)	421G0196 (C:11)	4242	22.2	58	683	2.0	58

FIG. 3

TCGAGCGGCCGCCCCGGGCAGGTCCTTCAGACTTGGACTGTGTCACTGCCAGGCTTCCAG
GGCTCCAACTTGCAGACGGCCTGTTGTGGGACAGTCTCTGTAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAACACCATGGTTTTATCCACCCTGAGATCTTTGAACAACTTCATCT
CTCAGCGTGCGGAGGGAGGCTCTGGACTGGATATTTCTACCTCGGECGCGACCACGCT

FIG. 4

TAGCGYGGTCGCGGCCGAGGYCTGCTTYTCTGTCCAGCCCAGGGCCTGTGGGGTCAGGGC
GGTGGGTGCAGATGGCATCCACTCCGGTGGCTTCCCCATCTTTCTCTGGCCTGAGCAAGGT
CAGCCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGTTCCTTGAACAAGGGCCTTAGCAG
GCCCTGAAGGCCCTCTCTGTAGTGTGAACTTCCTGGAGCCAGGCCACATGTTCTCCTCAT
ACCGCAGGYTAGYGATGGTGAAGTTGAGGGTGAAATAGTATTMANGRAGATGGCTGGCA
RACCTGCCCCGGCGGCCGCTCSAAATCC

FIG. 5

AGCGTGGTCCGGCCGAGGTGTCCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGATGCTGTCTGCACCCATCGTCCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGGCCCCCT
ACACCCTGGACAGGGACAGTCTCTATGTCAATGGTTTCACCCATCGGAGCTCTGTACCCAC
CACCAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCCGGCGGGCCGCTCGA

FIG. 6

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A

TTGGGGNTTTTMGAGCGGGCCCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTAC
ACTGAACTTCACCATCAACAACCTGCCGTATGAGGAGAACATGCAGCACCCCTGGCTCCAG
GAAGTTCAACACCACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCAC
CAGTGTGGCCCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACTTGAGAAACATGGG
GCAGCCACTGGAGTGGACGCCATCTGCACCCTCCGCCTTGATCCCCTGGTCCTGGACTGG
ACAGAGAGCGGCTATACTGGGAGCTGAGCCAGTCCTCTGGCGGNGACNCCNCTT

B

AGCGTGGTCGCGGGCCGAGGTCCAGTCCAGCATGCTCTTTCTCCTGCCCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTATCCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTTGGCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCCGGGCGGCCGCTCGA

FIG. 7A and 7B

TGTGGTGTTGAACTTCCTGGAGNCAGGGTGACCCATGTCCTCCCCATACTGCAGGTTGGTG
ATGGTGAAGTTGAGGGTGAATGGTACCAGGAGAGGGCCAGCAGCCATAATTGTSGRGCKG
SMGMSSGAGGMWGGWGTYYCWGAGGTTTCYRARRTCCACTGTGGAGGTCCCAGGAGTGCT
GGTGGTGGGGACAGAGSTCYGATGGGTGAAACCATTGACATAGAGACTGTTCTGTCCAG
GGTGTAGGGGCCAGCTCTTYRATGYCATTGGYCAGTTKGCTYAGCTCCCAGTACAGCCRC
TCTCKGYYGWCCAGSGCTTTTGGGGTCAAGATGATGGATGCAGATGGCATCCACTCCA
GTGGCTGCTCCATCCTTCTCGGACCTGAGAGAGGTCAGTCTGCAGCCAGAGTACAGAGGG
CCAACACTGGTGTTCTTTGAATA

FIG. 8

TCGAGCGGCCGCGCCGGGCAGGTCAGGAAGCACATTGGTCTTAGAGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAACCTGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTTCCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGGTGTGAACTTCCTGGAAACCAGGGTGTTCATGTTTTTCCTCATAATGCAAGGTTG
GTGATGG

FIG. 9

Gene Name	Ref Probe ID	Probe Name	Probe 2 Name	Gene ID	Probe1 Value	Probe2 Value	Probe1 S/B	Probe1 A%	Probe2 S/B	Probe2 A%
42100188 (001)	17.0	265A Ovary T	700A Liver N	422006006	8620	1240	57.7	65	2.2	65
42100188 (001)	15.9	521A Ovary Tumor	856 Spinal Cord N	422006028	5894	1002	35.3	89	3.9	89
42100188 (001)	15.7	485A Ovary T	891 Fetal tissue	422006007	12151	2124	54.3	71	2.8	71
42100188 (001)	15.1	426A Ovary T (incl)	415A Aorta N	422006011	7487	1480	51.0	71	9.7	71
42100188 (001)	15.5	261A Ovary Tumor	571 Breast N	422006024	7402	2116	39.2	84	4.5	84
42100188 (001)	14.3	481A Ovary T (incl)	11 Colon N	422006009	3714	1113	20.4	84	2.6	84
42100188 (001)	13.0	943A Ovary T (incl)	12 Skin N	422006001	2435	814	12.1	75	2.1	75
42100188 (001)	12.6	481A Ovary T (incl)	272A Dendritic cells	422006008	4578	1754	25.0	69	2.3	69
42100188 (001)	12.2	261A Ovary Tumor	52 Pancreas N	422006009	7901	3596	48.5	81	5.6	81
42100188 (001)	12.0	466A Ovary T	510 THK107 (cervical)	422006005	2491	1081	14.0	90	2.9	90
42100188 (001)	12.0	511A Ovary T (incl)	CT10 Small intestine	422006001	1979	971	10.4	80	2.7	80
42100188 (001)	12.0	65A Ovary Tumor	CT5 Heart H	422006024	1911	964	13.9	91	1.4	91
42100188 (001)	12.0	115A Ovary Tumor	57 Ovary H	422006006	1666	817	9.8	100	1.0	100
42100188 (001)	11.9	498A Ovary Tumor	211A Esophagus H	422006012	1827	3080	11.4	97	9.5	97
42100188 (001)	11.6	261A Ovary Tumor	510 Skeletal muscle	422006001	5914	1653	30.4	86	6.0	86
42100188 (001)	11.6	266A Ovary T	527 Ovary H	422006001	2019	1274	11.9	50	2.6	50
42100188 (001)	11.4	525 Ovary Tumor	CT9 Kidney H	422006017	1746	1072	11.0	92	4.0	92
42100188 (001)	11.4	985A Ovary Tumor	985A Ovary T (incl)	422006002	4204	3074	24.0	94	7.7	94
42100188 (001)	11.3	265A Ovary Tumor	101A Large Intestine	422006022	6002	2101	16.6	89	4.0	89
42100188 (001)	11.2	429A Ovary Tumor	361A Ovary N	422006019	1643	1297	9.6	90	3.1	90
42100188 (001)	11.2	462A Ovary T	CT19 Brain N	422006014	2521	2084	22.0	65	23.9	65
42100188 (001)	11.2	288A Ovary Tumor	CT12 Lung N	422006010	2072	1663	10.9	88	2.3	88
42100188 (001)	11.1	201A Ovary Tumor	86 Stomach N	422006025	1840	1474	10.7	87	3.8	87
42100188 (001)				422006020	1329	1204	9.1	90	3.5	90

FIG. 10

Gene Name	Bal Probe 1		Probe 2		GEM ID	Probe1		Probe2		Probe1		Probe2	
	Exp Name	P1	P2 Name			Value	B/B	Value	B/B	A%	B/B	A%	A%
421000181 (C3)	0188 385A Ovary T		591 Fetal tissue		422X0607	26711	103.3	1424	2.0	54	2.0	54	54
421000181 (C3)	0115 S21 Ovary Tumor		586 Spinal Cord N		422X0628	13589	65.3	1179	3.9	68	3.9	68	68
421000181 (C3)	0111 476A Ovary T (met)		415A Aorta F		422X0611	14125	67.3	1273	5.6	61	5.6	61	61
421000181 (C3)	0108 205A Ovary T		270A Liver F		422Q0606	16121	93.4	1488	2.3	43	2.3	43	43
421000181 (C3)	051 261A Ovary Tumor		573 Breast N		422H0623	11126	58.2	2235	4.4	68	4.4	68	68
421000181 (C3)	046 061A Ovary T (met)		222A Endocrine cell		422H0608	6581	24.5	1424	2.1	40	2.1	40	40
421000181 (C3)	044 261A Ovary Tumor		S2 Pancreas F		422N0629	9865	40.9	2235	3.6	64	3.6	64	64
421000181 (C3)	043 476A Ovary T (met)		661A Ovary N		422H0614	2803	22.6	638	7.4	60	7.4	60	60
421000181 (C3)	042 261A Ovary Tumor		510 Skeletal muscle		422H0624	8271	39.5	1949	3.6	68	3.6	68	68
421000181 (C3)	038 5115 Ovary Tumor		CT10 Small intestine		422H0601	2281	11.6	607	2.1	60	2.1	60	60
421000181 (C3)	025 265A Ovary Tumor		CT5 Heart F		422Q0624	1192	19.2	1291	4.0	68	4.0	68	68
421000181 (C3)	021 522 Ovary Tumor		CT9 Kidney F		122Q0627	565	12.6	1276	3.9	70	3.9	70	70
421000181 (C3)	022 266A Ovary T		S27 Ovary F		422S0603	2774	14.1	1260	2.7	46	2.7	46	46
421000181 (C3)	021 9111 Ovary T (SCH)		12510 F		422H0601	1774	8.4	817	2.1	56	2.1	56	56
421000181 (C3)	019 0485 F P Ovary T (C		9485 S P Ovary T (S		422Y0602	6967	41.5	3726	9.2	70	9.2	70	70
421000181 (C3)	016 362A Ovary T		CT19 Brain N		422Q0610	2411	6.2	1471	1.9	50	1.9	50	50
421000181 (C3)	015 S25 Ovary Tumor		CT12 Lung F		422V0625	1657	9.7	1054	2.9	69	2.9	69	69
421000181 (C3)	014 262A Ovary Tumor		CT1 Bone Marrow		422H0619	848	4.5	1244	2.7	65	2.7	65	65
421000181 (C3)	012 486A Ovary T		311A Large Intestine		422X0622	7171	16.8	2214	3.8	69	3.8	69	69
421000181 (C3)	012 415A Ovary Tumor		S40 PHN1 Cactivat		422H0605	640	4.2	544	1.9	54	1.9	54	54
421000181 (C3)	010 201A Ovary Tumor		S7 Ovary N		42220626	592	3.7	740	2.6	75	2.6	75	75
421000181 (C3)	010 476A Ovary T (met)		S6 Stomach F		422W0620	1197	7.8	1237	3.5	65	3.5	65	65
421000181 (C3)	010 476A Ovary T (met)		241A Esophagus F		422H0612	783	4.5	797	2.4	95	2.4	95	95
421000181 (C3)	010 476A Ovary T (met)		11 Colon F		422H0609	3470	8.9	862	1.7	24	1.7	24	24

FIG. 11

FIG. 12

Gene Name	Bal. Probe 1		P1	Probe 2		QEM ID	Probe1		Probe2	
	Exp Name	Exp Name		P2 Name	P2 Name		Value	Value	B/B	A%
421V0189 [011]	11.2 426A Ovary T (met)	415A Aorta N		415A Aorta N	422X0611		8072	243	55.2	67
421V0189 [011]	11.7 521 Ovary Tumor	536 Splinal Cord N		536 Splinal Cord N	422X0628		7467	517	42.6	69
421V0189 [011]	12.6 429A Ovary T (met)	461A Ovary N		461A Ovary N	422X0614		2850	227	21.7	64
421V0189 [011]	18.0 485A Ovary T	S91 Fetal tissue		S91 Fetal tissue	422X0607		11711	1469	54.0	58
421V0189 [011]	17.3 261A Ovary Tumor	S71 Breast N		S71 Breast N	422H0623		6949	952	37.8	69
421V0189 [011]	5.8 525 Ovary Tumor	C71 Bone Marrow		C71 Bone Marrow	422H0619		208	1210	2.1	44
421V0189 [011]	15.0 205A Ovary T	270A Liver H		270A Liver H	422X0606		8676	1717	52.3	57
421V0189 [011]	11.5 463A Ovary T (met)	11 Colon N		11 Colon N	422H0609		1149	707	17.4	57
421V0189 [011]	14.4 261A Ovary Tumor	S10 Skeletal muscle		S10 Skeletal muscle	422X0621		6312	1431	29.1	77
421V0189 [011]	14.7 261A Ovary Tumor	S2 Pancreas H		S2 Pancreas H	422X0629		7612	1849	38.1	79
421V0189 [011]	1.2 482A Ovary T	C719 Brain H		C719 Brain H	422X0610		468	1508	3.4	60
421V0189 [011]	12.9 9414 Ovary T (SCN)	P Skin H		P Skin H	422X0601		2500	860	12.3	51
421V0189 [011]	12.5 5115 Ovary T (met)	C710 Small intestine		C710 Small intestine	422X0601		1424	569	6.7	61
421V0189 [011]	1.4 265A Ovary Tumor	C75 Heart H		C75 Heart H	422X0604		1742	723	11.8	70
421V0189 [011]	12.3 464A Ovary T (met)	272A Endothelial cells		272A Endothelial cells	422X0608		4083	1342	17.0	62
421V0189 [011]	11.9 266A Ovary T	S27 Ovary H		S27 Ovary H	422X0603		1370	742	8.0	47
421V0189 [011]	1.9 486A Ovary T	S40 PHM17 lactival		S40 PHM17 lactival	422X0605		407	580	2.6	41
421V0189 [011]	11.7 262A Ovary Tumor	333A Large intestine		333A Large intestine	422X0622		2097	1202	11.2	86
421V0189 [011]	1.3 115A Ovary Tumor	S7 Ovary H		S7 Ovary H	422X0626		173	470	2.9	47
421V0189 [011]	1.1 268A Ovary Tumor	C712 Lung H		C712 Lung H	422X0625		969	1094	5.6	72
421V0189 [011]	1.1 201A Ovary Tumor	S6 Stomach N		S6 Stomach N	422X0620		750	672	5.6	62
421V0189 [011]	1.1 426A Ovary T (met)	243A Esophagus H		243A Esophagus H	422X0612		498	446	4.2	71
421V0189 [011]	1.0 9485 LP Ovary TG	9485 S P Ovary TG		9485 S P Ovary TG	422X0602		3117	3174	16.7	91
421V0189 [011]	5.22 Ovary Tumor	C79 Kidney N		C79 Kidney N	422X0627		223	409	2.3	48

FIG. 13

Gene Name	Exp Name	Dal Probe	Probe 1		Probe 2	GEM	Probe 1		Probe 2	
			P1	P2			Value	B/B	Value	B/B
421100187 (E11)	120.2 426A Ovary T (tunc)					422X0611	5441	36.3	270	2.1
421100187 (E11)	100.0 521 Ovary Tumor					422C0628	5418	27.1	533	2.1
421100187 (E11)	08.1 429A Ovary T (tunc)					422H0614	1252	10.1	150	2.5
421100187 (E11)	05.7 085A Ovary T					422X0607	9507	35.8	1608	3.8
421100187 (E11)	04.4 205A Ovary T					422Q0606	5456	31.1	1245	2.1
421100187 (E11)	04.2 265A Ovary Tumor					422Q0624	1834	11.9	408	2.0
421100187 (E11)	04.1 085A Ovary T					422Q0610	109	2.6	1259	2.0
421100187 (E11)	03.6 261A Ovary Tumor					422Q0624	1733	17.7	1006	2.0
421100187 (E11)	03.1 261A Ovary Tumor					422H0624	4163	21.0	1249	2.1
421100187 (E11)	02.5 5115 Ovary T (tunc)					422H0624	1505	8.8	627	2.1
421100187 (E11)	02.1 261A Ovary Tumor					422H0629	1455	14.9	1640	3.0
421100187 (E11)	02.1 081A Ovary T (tunc)					422H0608	2667	13.9	1270	2.1
421100187 (E11)	01.5 522 Ovary Tumor					422H0627	291	2.4	605	1.9
421100187 (E11)	01.7 086A Ovary T					422H0605	410	3.2	687	2.5
421100187 (E11)	01.6 9114 Ovary T (SCH)					422H0601	1622	7.9	984	2.0
421100187 (E11)	01.5 262A Ovary Tumor					422A0622	1892	10.1	1245	2.2
421100187 (E11)	01.5 288A Ovary Tumor					422V0625	604	4.1	908	2.6
421100187 (E11)	01.4 426A Ovary T (tunc)					422A0612	246	2.7	325	2.6
421100187 (E11)	01.3 055A Ovary Tumor					422W0626	382	2.9	501	1.9
421100187 (E11)	01.2 201A Ovary Tumor					422W0620	558	4.2	677	2.0
421100187 (E11)	01.0 9185 1 P Ovary T (S)					422Y0602	2582	15.1	2493	2.3
421100187 (E11)	081A Ovary T (tunc)					422H0609	2261	12.5	562	6.3
421100187 (E11)	266A Ovary T					422S0603	1749	9.7	965	1.7
421100187 (E11)	525 Ovary Tumor					422H0619	283	2.2	845	2.2

FIG. 14

11721-1

ACGGTTTCAATGGACACTTTTATTGTTTACTTAATGGATCATCAATTTTGTCTCACTACCTA
CAAATGGAATTTTCATCTTGTTCATGCTGAGTAGTGAAACAGTGACAAAGCTAATCATAA
TAACCTACATCAAAAGAGAATAAGCTAACACTGCTCACTTTCTTTTAAACAGGCAAAATA
TAAATATATGCACCTCTAXAATGCACAATGGTTTATGCTACTAAAAAATTCAAATGGGATCTT
GAAGAATGTATGCAAAATCCAGGGTGCAGTGAAGATGAGCTGAGATGCTGTGCAACTGTTT
AAGGGTTCCTGGCACTGCATCTCTGGCCACTAGCTGAATCTTGACATGGAAGGTTTTAGC
TAAFGCCAAGTGGAGATGCAGAAAAATGCTAAGTTGACTTAGGGGCTGTGCACAGGAACTA
AAAGGCAGGAAAGTACTAAATATTGCTGAGAGCATCCACCCCAGGAAGGACTTTACCTTC
CAGGAGCTCCAAACTGGCACCACCCCCAGTGCTCACATGGCTGACTTTATCCTCCGTGTTT
CATTTGGCACAGCAAGTGGCAGTG

11721-2

AAGGCTGGTGGGTTTTTATCCTGCTGGAGAACCTCCGCTTTTATGTGGAGGAAGAAGGG
AAGGGAAAAAGATGCTTCTGGGAACAAGGTTAAAGCCGAGCCAGCCAAAAATAGAAGCTTTC
CGAGCTTCACTTTCCAAAGCTAGGGGATGTCTATGTCAATGATGCTTTTGGCACTGCTACA
GAGCCACAGCTCCATGGTAGGAGTCAATCTGCCACAGAAGGCTGGTGGGTTTTTGATGA
AGAAGGAGCTGAATACTTTCGCAAGGCCCTGGAGAGCCCAGAGCCACCTTCTGGCCA
TCCTGGGGCGGAGCTAAAGTTCGACACAAGATCCAGCTCATCAATAATATGCTGGACAAAG
TCAATGAGATGATTATTGGTGGTGGAAATGGCTTTACCTTCTTAAGGTGCTCAACAACAT
GGAGATTGGCACTTCTCTGTTTCATGAAGAGGGAGCCAAGATTGTCAAAGACCTAATGTCC
AAAGCTGACAAGAATGGTGTGAAGATTACCTTGCTGTTGACTTTGTCACTGCTGACAAGT
TTGATGA

11724-1

TTTGTTCTTACATTTTTCTAAAGAGTTACTTAAATCAGTCAACTGGTCTTTGAGACTCTTA
AGTTCTGATTCCAACCTAGCTAATTCATTCTGAGAAGTGTGGTATAGGTGGCGTGTCTCTTC
TAGCTGGGACAAAAGTTCTTTGTTTTCCCTGTAGAGTATCACAGACCTTCTGCTGAAGC
TGGACCTCTGTCTGGGCTTGGACTCCCAAAATCTGCTTGTCATGTTCAAGCCTGGAAATGTT
AATCTTTAAATCTTCCATATGGAATGGACATCTGTCTAAGTTGATCCTTTAGAAGACTGCAAT
TATCTTCTTTGAGCTCTAATTTCTTCTCTTGGCTTTGAATCGCATCACTAAACTTCTCTCCC
ATTTCTTAGCTTCACTATCACCTGTACAGATCATCTTGGAGGGGAAGACATGCTCTTAGTA
AAGGCTGCAAGCTGGGTACAGTACTGTCCAAGTTTTCTGAAAGTTGCTGAAGTTCTTGT
CTTTCTTGTTCAAAGTAACCTGAATCTCTCCAATTTGCTCTTCCAAGTGGACTTTTTCTCTGC
GCAAAGCATCCAG

11724-2

TCATTGCCCTGTGATGGCATCTGGAATGTGATGAGCAGCCACGAAGTTGTAGATTTCAATTCA
ATCAAAGGATTCAGCATGTGGTGGAAAGCTGTGAGGCAAGAGAAACAAGAACTGTATGGCA
AGTTAAGAAGCACAGAGGCAAAACAAGAGGAGACAGAAAAGCAGTTGCAGGAAGCTGAG
CAAGAAATGGAGGAAATGAAAGAAAGATGAGAAAGTTTGCTAAATCTAAACAGCAGAA
AATCTTAGAGCTGGAAGAGAGAAATGACCGGCTTAGGGCAGAGGTGCACCCTGCAGGAG
ATACAGCTAAAGAGTGTATGGAACACTTCTTTCTCAATGCCAGCATGAAGGAAGAAGC
TTGAAAGGGTCAAAATGGAGTATGAACCCCTTCTAAGAAGTTTCACTCTTTAATGTCTGA
GAAAGACTCTCTAAGTGAAGAGGTTCAAGATTAAAGCATCAGATAGAAGGTAATGTATC
TAAACAAGCTAACCTAGAGGCCACCGAGAAACATGATAACCAAAACGAATGTCACTGAAGA
GGGAACACAGTCTATACCAGGT

FIG. 15A

11725-32-1.2

AAGCCAATAATCACCAATTTATTACTTAATATATGCCAACCCTGTACTTGGCAGTTCACAA
ATTCTCACCGTTACAACAACCCCATGAGGTATTTATCCCAATCTATAGATAGGGAAACCA
CAGCTCAAGTAAGTTAGGAAACTGAGCCAAGTATACACAGAATACGAAGTGGCAAACTA
GAAGGAAAGACTGACACTGCTATCTGCTGGCCTCCAGTGTCTGGCTCTTTTACACGGGT
CAATGTCTCCAGCGCTGCTGCTGCTGCTGCTATTACCATGCCCTCATTGTTTTCTTCTCTG
GTGTTCAACTGCATCCTTCAAAGAACTAACTCATTCCAGAGACCCTTATTTCTTCTCTC
TTTCTGAAATTACTTTTTAATAATTCTTATGAGGGGGGAAAAAGAAGATGCCCTGTTGGTAGTT
TTGTTGTTTAAGCTGCTCAATTTGGGACTTAAACAAATTTGTTTTATCTTGTACATCCTGTA
ACAGCTGTGTTTTGCTAGAAAGATCACTCTCCCTCTCTTTTAGCATGGCTTCTAACCTCTTC
AATTCATTTTCTTTTCTTTCAACACAATCTCAAGTTCTTCAAAGTGTGATGCAGAAGAGGC
CTCTTTCAAGTTATGTTGTGCTACTTCTGAACATGTGCTTTTAAAGATTCAATTTCTTCTTG
AAGATCCTGTAACCACTTCCCTGTAATGGCTAGGTCTTTCTCTTTCTTCCAAAACAGCCT
TCATGGTATTCATCTGTTCTCTTTTCTTTTAAATAAGTTTCAGGAGCTTCAGAAC

11726-1&2

CAAGCTTTTTTTTTTTTTTAAAAAGTGTAGCATTAAATGTTTTATTGTCACGCAGATGGCA
ACTGGGTTTTATGTCTTCATATTTTATTTTTGTAAATTAAAAAAATTACAAGTTTTAAATA
GCCAATGGCTGGTTATATTTTACAGAAACATGATTAGACTAATTCATTAATGGTGGCTTCA
AGCTTTTCTTATTTGGCTCCAGAAAATCACCCACCTTTTGTCCCTTCTTAAAAAACTGGAA
TGTGGCATGCATTTGACTTCACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTT
CAAGGAATATCACGTTGGAATACTTTTCAAGAGGGGAATGAAAGAAAGGCTTGATCATTT
TGCAAGGCCCCACACCACGCTGGCTGAGAAGTCAACTACTACAAGTTTATCACCTGCAGCGTC
CAAGGCTTCTGAAAAGCAGTCTTCTCTCGATCTGCTTCAACATCTTGGCTGCTGGAGTCT
GACGAGCGGCTGTAAGGACCGATCGAAATCGATCCAAAGCACCAAAACAGAGCTTCAAGA
CTCGCTGCTTGGCTTGAATTCGGATCCGATATCGCCATGGCCT

11727-1&2

AAGTGTAGCATTAAATGTTTTATTGTCACGCAGATGGCAACTGGGTTTTATGTCTTCATTTT
TATATTTTGTAAATTAAAAAAATTCAGTTTTAAATAGCCAATGGCTGGTTATATTTT
AGAAAACATGATTAGACTAATTCATTAATGGTGGCTTCAAGCTTTTCTTATTGGCTCCAG
AAAATTCACCCACCTTTTGTCCCTTCTTAAAAAACTGGAATGTTGGCATGCATTTGACTTCA
CACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTTCAAGGAATATCACGTTGGAAT
ACTTTTCAAGAGGGGAATGAAAGAAAGGCTTGATCATTTTGAAGGCCCCACACCACGTTGG
CTGAGAAGTCAACTACTACAAGTTTATCACCTGCAGCGTCCAAAGGCTTCTGAAAAGCAGT
CTTGCTCTCGATCTGCTTCAACATCTTGGCTGCTGGAGTCTGACGAGCGGCTGTAAGGACC
GATGGAAATGGATCCAAAGCACCAAAACAGAGCTTCAAGACTCGCTGCTTGGCATGAATTC
GGATCCGA

FIG. 15B

11723.1.40.19.19

TACAAACTTTATTGAAACGCACACGGCGACACACACAAACACCCCTGTGGATAGGGAAAA
GCACCTGGCCACAGGGTCCACTGAAACGGGGAGGGGATGGCAGCTTGTAAATGTGGCTTTT
GCCACAACCCCTTCTGACAGGGAAGGCCTTAGATTGAGGCCCCACCTCCCATGGTGATGG
GGAGCTCAGAATGGGGTCCAGGGAGAATTTGGTTAGGGGGAGGTGCTAGGGAGGCATGA
GCAGAGGGCACCCCTCCGAGTGGGGTCCCGAGGGCTGCAGAGTCTTCAGTACTGTCCCTCAC
AGCAGCTGTCTCAAGGCTGGGTCCCTCAAAGGGGCGTCCAGCGCGGGGCTCCCTGCGC
AAACACTTGGTACCCCTGGCTGCGCAGCGGAAGCCAGCAGGACAGCAGTGGCGCCGATCA
GCACAACAGACGCCCTGGCGGTAGGGACAGCAGGCCCCAGCCCTGTGGTTGTCTCGGCAG
CAGGTCTGGTTATCATGGCAGAAGTGTCTTCCCACACTTCACGTCTTCACACCCACGTG
AXGGCTACXGGCCAGGAAG

11728.2.40.19.19

CCCGTGGGTGCCATCCACGGAGTTGTTACCTGATCTTTGGAAGCAGGATCGCCCGTCTGCA
CTGCAGTGGGAAGCCCCGTGGGCAGCAGTGATGGCCATCCCCGCATGCCACGGCCTCTGGG
AAGGGGCAGCAACTGGAAGTCCCTGAGACGGTAAAGATGCAGGAGTGGCCGGCAGAGCA
GTGGGCATCAACCTGGCAGGGGCCACCCAGATGCCTGCTCAGTGTGTGGGGCAATTTGTCC
AGAAGGGGACGGCAGCAGCTGTAGCTGGCTCCTCCGGGGTCCAGGCAGCAGGCCACAGGG
CAGAAGTACCATCTGGGCACCGCGTTCCAGCCACCAGCCCTGCTGTTAAGGCCACCCAGC
TCACCAGGGTCCACATGGTCTGCTGCTCCGACTCCCGGCTCCTTGGGGCCCTGATGGTTT
TACCTGCTGTGAGCTGCCAGTGGGAAGTATGGCTGCTGCCAATGCCCAACGCCACCTGCT
GCTCCGATCACCTGCACGTGCTGCCCCAAGACACTGTGTGTGACCTGATCCAGAGTAAGTGC
CTCTCCAAGGAGAACG

11730-1

GAATCACCTTTCTGGTTTAGCTAGTACTTTGTACAGAACAAATGAGGTTTCCCACAGCGGAG
TCTCCCTGGGCTCTGTTTGGCTCTCGGTAAAGGCAGGCCTACACCTTTTCTCTCTATGG
AGAGGGGAATATGCAATAAGGTGAAAAGTCACTTCCAAAAGTGAGAAAAGGGATTCGATT
GCTGCTTCAGGACTGTGGAAATATTTGCAATGTTTACAAAATGGTTGCTACAAAACAACAA
AAAAGCTAATTACAAAATGTGTACATCAACATGCTTTTAAAGACATTATGCATTGTGC
TCACATTCCTTAAATGTTGTTTCCAAAGGTGCTCAGCCTCTAGCCCAGCTGGATTCTCCGG
GAAGAGGCAGAGACAGTTTGGCGAAAAGACACAGGGAAGGAGGGGGTGGTGAAGGA
GAAAGCAGCCTTCCAGTTAAAGATCAGCCCTCAGTTAAAGGTACGCTTCCCGCAXGCTGGC
CTCAXGCGGAGTCTGGGTACAGGGAGGAGCAGCAGCAGGGTGGGACTGGGGCGT

11730-2

AACCGGAGCGCGAGCAGTAGCTCGGTGGCCACCATGGCTGGGATCACCAACATCGAGGCG
GTGAAGCGCAAGATCCAGGTTCTGCAGCAGCAGCCAGATGATGCAGAGGAGCGAGCTGA
GCCCTCCAGCGACAAGTTGAGGGAGAAAGCGCGCGCCGGGAACAGGCTGAGGCTGAGG
TGGCCTCCTTGAACCGTAGGATCCAGCTGGTTGAAGAAGAGCTGGACCGTGCTCAGGAGC
GCCTGGCCACTGCCCTGCAAAAAGCTGGAAGAAGCTGAAAAAGCTGCTGATGAGAGTGAGA
GAGGTATGAAGGTTATTGAAAACCGGGCTTAAAGATGAAGAAGATGGAAGTCCAG
GAAAATCCAACTCAAAGAAGCTAAGCACATTCCAGAAGAGGCAGATAGGAAGTATGAAGA
GGTGGCTCGTAAGTTGGTGTATCATTAAGGAGACTTGAACGCACAGAGGAACGAGCTGA
GCTGGCAGAGTCCCGTTGCCGAGAGATGGATGACAGATTAGACTGATGGACCAGAACCT
GAAGTGTCTGAGTGC

FIG. 15C

11732.1contig

GAGAACTTGGCCTTTATTGTGGGCCCAGGAGGGGCACAAAGGTCAGGAGGGCCCAAGGGAGG
 GATCTGGTTTTCTGGATAGCCAGGTCATAGCATGGGTATCAGTAGGAATCCGCTGTAGCTG
 CACAGGCCTCACTTGCTGCACTTCCGGGGAGAACACCTGCACTGCATGGCGTTGATGACCT
 CGTGGTACACGACAGAGCCATTGGTGCAGTGCAAGGGCACGGCGCATGGGCTCCGTCCTCG
 AGGGCAGGCAGCAGGAGCATTGCTCCTGCACATCCTCGATGTCAATGGAGTACACAGCTT
 TGCTGGCACACTTTCCCTGGCAGTAATGAATGTCCACTTCCTCTTGGGACTTACAATCTCCC
 ACTTTGATGTAAGTGCACCTTGGCTGTGATGTCTTTGCAATCAGGCTCCTCACATGTGTGACA
 GCAGGTGCCTGGAATTTTACGATTTTGCCTCCTTCAGCCAGACACTTGTGTTTCAATG
 GTGGGCAGCCCGTGACCTCTTCTCCCAGATGTACTCTCTCT

11732.2contig

GCCTGGACCTTGGCCGGATCAGTGCCACACAGTGACTTGCTTGGCAAATGGCCAGACCTTGC
 TGCAGAGTCATCGTGTCAATTGTGACCATGGACCCCGGCTTCATGTGCCAACAGCCAGTC
 TCCTGTTCCGGGTGGAGGAGACGTGTGGCTGCCGCTGGACCTGCCCTTGTGTGTGCACGGGC
 AGTTCCACTCGGCACATCGTCACTTCGATGGGCAGAAATTTCAAGCTTACTGGTAGCTGCT
 CCTATGTATCTTTCAAACAAGGAGCAGGACCTGGAAGTGCTCCTCCACAATGGGGCCTG
 CAGCCCCGGGGCAAACAAGCCTGCATGAAGTCCATTGAGATTAAGCATGCTGGCGTCTC
 TGCTGAGCTGCACAGTAACAAGCAGATGGCAGTGGATGGGAGACTGGTCTTGGCCCGTA
 CGTTGGTGAAAACATGGAAGTCACCATCTACGGCGCTATCATGTATGAAGTCAGGTTTACC
 CATCTTGGCCACATCCTCACATACACGGCCXCAAAAACAACGAGTT

11735-1-2

AGATCAACCTCTGCTGGTCAGGAGGAATGCCCTTCCTTGTCTTGGATCTTTGCTTTGACGTT
 TCGATAGTRWCACTKRYTSRAMSKMAAGNGYRATGRWMTTKSYWGWRA SYXTMWWW
 RSGRARAYTTGCA YCCCMCCCTCWAGCGSAGKACCARGTGCAAGTGGAAGCTCTTTCTG
 GATGTTGTAGTCAGACAGGCTCCGCTCATCTTCCAGCTGTTTCCCAGCAAAGATCAACCTC
 TGCTGATCAGGAGGGATGGCTTCTTATCTTGGATCTTTGCCCTTGACATTCTCGATGGTGT
 ACTGGGCTCCACCTCGAGGGTGATGGTCTTACCAGTCAGGCTCTTACGAAGATYTGATC
 CCACCTCTGAGACGGAGCCAGGCTGAGGGTTCAGCTCTTTCTGGATGTTGTAGTCAGACA
 GGGTCCGYCCATCTTCCAGCTGCTTCCSAGCAAAGATCAACCTCTGCTGGTCAAGGAGGRAT
 GCCTTCCTTGTCTGATCTTTGCTTACCTTCTCTATGGTGTCACTCGGCTCCACTTCGA
 GAGTGATGGTCTTACCAGTCAGGCTCTTACGAAGATCTGCATCCCACCTCTAA

11740.2.contig

AAGTCACAAACAGACAAAGATTATACCAGCTGCAAGCTATATTAGAAGCTGAACGAAGA
 GACAGAGGTGATGATTCTGAGATGATTGGAGACCTTCAAGCTCGAATTACATCTTTACAAG
 AGGAGGTGAAGCATCTCAACATAATCTCGAAAAAGTGGAAAGGAGAAAGAAAAGAGCCT
 CAAGACATGCTTAATCACTCAGAAAACGAAAAGAAATAATTTAGAGATAGATTTAAACTAC
 AAACCTTAAATCATTACAACAACGGTTAGAACAAAGAGGTAAATGAACACAAAGTAACCAAA
 GCTCGTTTAACTGACAAACATCAATCTATTGAAGAGCCAAAGTCTGTGGCAATGTGTGAG
 ATGGAAGAAAAGCTGAAAGAAAGAAAGAGAGCTCGAGAGAAGGCTGAAAATCGGGTTGT
 TCAGATTGAGAAACAGTGTTCATGCTAGACCTTGATCTGAAGCAATCTCAGCAGAACT
 AGAACATTTGACTGCAAAATAAAGAAAGCATGGAGGATGAAGTTAAGAATCTA

FIG. 15D

13711.2

TGAGACGGACCACTGGCCTGGTCCCCCTCATKTGCTGTCGTAGGACCTGACATGAAACGC
AGATCTAGTGGCAGAGAGGAAGATGATGAGGAACCTTCTGAGACGTCGGCAGCTTCAAGAA
GAGCAATTAATGAAGCTTAACTCAGGCCTGGGACAGTTGATCTTGAAAAGAGATGGAG
AAAGAGAGCCGGGAAGGTCACTCTGTTAGCCAGTCGCTACGATTCTCCCATCAACTCAG
CTTCACATAATCCATCATCTAAAACCTGCATCTCTCCCTGGCTATGGAAGAAATGGGCTTCA
CCGGCCTGTTTCTACCGACTTCGCTCAGTATAACAGCTATGGGGATGTCAGCGGGGGAGTG
CGAGATTACCAGACACTTCCAGATGGCCACATGCCCTGCAATGAGAATGGACCGAGGAGTG
TCTATGCCCCAACATGTTGGAAACCAAGATAATTCATATGAAATGCTCATGGTGACCAACA
GAGGGCCGAACCAAAATCTCAGAGAGGTGGACAGAA

13713.1&2

TCACTTTATTTTTCTTGTATAAAAAACCTATGTTGTAGCCACAGCTGGAGCCTGAGTCCGCT
GCACGGAGACTCTGGTGTGGGTCTTGACGAGGTGGTCAGTGAACCTCCTGATAGGGAGACT
TGGTGAATACAGTCTCCTTCCAGAGGTCCGGGGTCAGGTAGCTGTAGGTCTTAGAAATGGC
ATCAAAGGTGGCCTTGGCGAAGTTGCCCAGGGTGGCAGTGCAGCCCCGGGCTGAGGTGTA
GCAGTCATCGATACCAGCCATCATGAG

13715.4

CTGGAATATAGACCCGTGATCGACAAAACCTTGAACGAGGCTGACTGTGCCACCGTCCCCG
CAGCCATTCCCTCCTACTGATGACACAAGATGTGGTGATGACAGAATCAGCTTTGTAAAT
ATGTATAAATAGCTCATGCATGTGTCCATGTCTAATACTGTCTTCATACGCTTCTGCACTCTGG
GGAAGAAGGAGTACATTGAAGCGAGATTGGCACCTAGTGGCTGGGAGCTTGGCAGGAACC
CAGTGGCCAGGGAGCGTGCCACTTACCTTTGTCCCTTGCTTCATTCTTGTGAGATGATAAA
ACTGGGCACAGCTCTTAAATAAAATATAAATGAACA

13717.1&2

TGAATGGGCAGCAGCTGACCCAGGAAATGGAGCTTGNGGAGACCAGGCCTGCAGGGGAT
GGAACCTTCCACAAGTGGGCATCTGTGGTGGTGCCTCTTGGGAAGGAGCAGAAGTACACA
TGCCATGTGGAACATGAGGGGCTGCCTGAGCCCTCACCTGAGATGGGGCAAGGAGGAG
CCTCCTTCATCCACCAAGACTAACACAGTAATCATTTGCTGTTCCGGTTGTCTTGGAGCTGT
GGTCATCCTTGGAGCTGTGATGGCTTTGTGTATGAAGAGGAGGAGAAACACAGGTGGAAA
AGGAGGGGACTATGCTCTGGCTCCAGGCTCCAGAGCTCTGATATGTCTCTCCAGATTGT
AAAGTGTGAAGACAGCTGCCTGGTGTGGACTTGGTGACAGACAATGTCTTCACACATCTCC
TGTGACATCCAGAGACCTCAGTCTCTTTAGTCAAGTGTCTGATGTTCCCTGTGAGTCTCCG
GGCTCAAAGTGAAGAAGTGTGAGCCCACTCCACCCCTGCACACCAGGACCCTATCCCTG
CACTGCCCTGTGTTCCCTTCCACAGCCAACCTTGTCTGCTCCAGCCAACATTGGTGGACAT
CTGCAGCCTGTACGCTCCAAGCTACCTTGACCTTCAACTCCTCACTTCCACACTGAGAATA
ATAATTTGAATGTGGGTGGCTGGAGAGATGGCTCAGCGCTGACTGCTCTTCCAAAGGTCT
GAGTTCAAATCCCAGCAACCACATGGTGGCTCACAACCATCTGTAATGGGATCTAATACCC
TCTTCTGCACTGTCTGAAGACASCTACAGTGTACTTACATATAATAATAAATAAG

FIG. 15M

13719.1&2

GGCCGGGGCGCGCGCGCCCCGCCACACGCACGCCGGGCGTGCCAGTTTATAAAGGGAGAG
AGCAAGCAGCGAGTCTTGAAGCTCTGTTTGGTGCTTTGGATCCATTTCATCGGTCTTAC
AGCCGCTCGTCAGACTCCAGCAGCCAAGATGGTGAAGCAGATCGAGAGCAAGACTGCTTT
TCAGGAAGCCTTGGACGCTGCAGGTGATAAACTTGTAGTAGTTGACTTCTCAGCCACGTGG
TGTGGGCTTGC AAAATGATCAAGCCTTTCTTTCAATCCCTCTCTGAAAAGTATTCCAACGT
GATATTCCTTGAAGTAGATGTGGATGACTGTCAGGATGTTGCTTCAGAGTGTGAAGTCAAA
TGCATGCCAACATTCCAGTTTTTTAAGAAGGGACAAAAGGTGGGTGAATTTTCTGGAGCCA
ATAAGGAAAAGCTTGAAGCCACCATTAAATGAATTAGTCTAATCATGTTTTCTGAAAATATA
ACCAGCCATTGGCTATTTAAACTTGTAAATTTTTTAATTTACAAAAATATAAAATATGAA
GACATAAACCCMGTGGCATCTCGGTGACAATAAAACATTAATGCTAACACTT

13721.1

TCACATAAGAAATTTAAGCAAGTTACRCTATCTTAAAAAACACAACGAATGCATTTTAATA
GAGAAACCTTCCCTCCCTCCACCTCCCTCCCCACCCTCCTCATGAATTAAGAAATCTAAG
AGAAGAAGTAACCATAAAACCAAGTTTGTGGAATCCATCATCCAGAGTGCTTACATGGT
GATTAGGTAAATATTGCCCTTCTTACAAAAATTTCTATTTTAAAAAAAATTATAACCTTGATTG
CTTATTACAAAAAATTCAGTACAAAAGTTCAATATATTGAAAAATGCTTTCCCTCCCT
CACAGCACCGTTTTATATATAGCAGAGAAATAATGAAGAGATTGCTAGTCTAGATGGGGCA
ATCTTCAAATTACACCAAGAGGCACAGTGGTTTATTACCCTCCCTTCTCATAAG

13721.2

GGAAAGGATTCAAGAAATTAGAGGACTTGGTGGCTRRAGAAAAAGACAACCTCTCGTGGCAT
GCTGACAGACAAAGAGAGAGAGATGGCCGAAATAAGGGATCAAATGCAGCAACAGCTGA
ATGACTATGAACAGCTTCTTGATGTAAAGTTAGCCCTGGACATGGAAATCAGTGCTTACAG
GAAACTCTTAGAAGGCGAAGAAGAGAGGTTGAAGCTGTCTCCAAGCCCTTCTTCCCGTGT
GACAGTATCCCGAGCATCCTCAAGTCTAGTGTACCGTACAACCTAGAGGAAAGCGGAAGA
GGGTTGATGTGGAAGAAATCAGAGCCGAAAGTAGTAGTGTAGCATCTCTCATTCCGCCTCAA
CCACTGGAAATGTTTGCATCGAAGAAAATGATGTTGATGGGAAATTTATCCCGCTTGAAGA
ACACTTCTGAACAGGATCAACCAATGGGAAGGCTTGGGAGATGATCAGAAAAATTGGAGA
CACATCAGTCAGTTATAAATAACCTCAA

13723.1

CATGGGTTTCACCAGGTTGGCCAGGCTGCTCTTGAACCTCTGACCTCAGGTGATCCACCCG
CCTCGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCTCGGCCCCCAAAGC
TGTTTCTTTTGTCTTTAGCGTAAAGCTCTCTGCCATGCAGTATCTACATAACTGACGTGAC
TGCCAGCAAGCTCAGTCACTCCGTGGTCTTTCTCTTTCCAGTTCTTCTCTCTCTTCAAG
TTCTGCCTCAGTGAAAGCTGCAGGTGCCAGTTAAGTGATCAGGTGAGGGTTCTTTGAACC
TGTTCTATCAGTCGAATTAATCCTTCATGATGG

FIG. 15N

13723.2

GATGTGTTGGACCCTCTGTGTC.AAAAAAAACCTCACAAAGAAATCCCCTGCTCATTACAGAA
GAAGATGCAATTAAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA
TTATTGTGTGAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG
GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
TTTCTGCATGGGAACCTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACCG
GCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACCTTATATTAGATGTGTTAAAG
CAGGGTTACATGATGAAAAAGGGCCACAGACGGAAAAAAGTGGACTGAAAGATGGTTTGTA
CTAAAACCCCAACATAATTTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGGAGAC
ATTCTCTTGGATGAAAAATTGCTGTGTAGAAAGTCCTTGCTGACAAAAGATGGAAAGAAAT
GCCTTTT

13725.1

GACTGGTTCCTTTATTTCAAAAAGACACTTGTCAATATTCAGTRTCAAAACAGTTGCACTATT
GATTTCTCTTTCTCCCAATCGGCCCAAGAGACCACATAAAAGGAGAGTACATTTTAAGC
CAATAAGCTGCAGATGTACACCTAACAGACCTCCTAGAAACCTTACCAGAAAAATGGGGA
CTGGGTAGGGAAGGAAACTTAAAGATCAACAACTGCCAGCCACGGACTGCAGAGGCT
GTCACAGCCAGATGGGGTGGCCAGGGTCCCAAAACCCAAAGCAAAAGTTTCAAAATAATA
TAAAAATTTAAAAAGTTTTGTACATAAGCTATTCAAGATTTCTCCAGCACTGACTGATACAA
AGCACAAATTGAGATGGCACTTCTAGACACAGCAGCTTCAAACCCAGAAAAGGGTGATGAG
ATGAAGTTTCACATGGCTAAAACAGTGGCAAAAACACAGTCTTCTTTCTTTCTTTCTTCAA
GGANGCAGGAAAGCAATTAAGTGGTCACCTTAACATAAGGGGGAC

13725.2

TGGGTGGCCACCATGGCTGGGATCACCACCATCGAGCGGGTGAAAGCCCAAGATCCAGGTT
CTGCAGCAGCAGGCAGATGATGCAGAGGAGCGAGCTGAGCGCCTCCAGCGAGAAGTTGA
GGGAGAAAAGCGGGGGGGGGGAAACAGGCTGAGGCTGAGGTGGCCTCCTTGAACCGTAGGA
TCCAGCTGGTTGAAGAAGAGCTGGACCGTCTCAGGAGCGCCTGGCCACTGCCCTGCAAA
AGCTGGAAGAAGCTGAAAAAGCTGCTGATGAGACTGAGAGAGGTATGAAGGTTATTGAA
AACCGGGCCTTAAAAAGATCAAGAAAAAGATGCAACTCCAGGAAATCCAACTCAAAGAAGC
TAAGCACATTGCAGAAAGAGCCAGATAGGAAGTATGAAGAGGTGGCTCGTAAGTTGGTGAT
CATTGAAGGAGACTTGGAAACCCACAGAAAGGAACGAGCTTGACCTTGGCAAAAAGTCCCGT
TGCCACAGAGATGGGATGAACCACATTAGACTGATGGACCANAACC

13726.1&2

AGGGGCGNGCGGTGCGTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCAC
CTGGAAGCGCCCCGAGAGTGACAGCGCTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGT
TAAACTCTGCTCTGAGCCTCCTTCTGGCCTGCAATTAGATGGCTCCCGCAAAGAAGGGTGG
CGAGAAGAAAAAGGGCGCTTCTGCCATCAACGAAGTGGAACCCGAGAAATACACCATCAA
CATTCAACCGCATCCATGGAGTGGGCTTCAAGAAGCGTGACCTCGGGCACTCAAAGA
GATTGGGAAATTTGCCATGAAGGAGATGGGAAGTCCAGATGTGGCATTGACACCAGGCT
CAACAAAGCTGTCTGGGCCAAAGGAATAGGAATGTGCCATACCGAATCCGGTGTGGGGC
TGTCCAGAAAAAGCTAATGAGGATGAAGATTACCAAAATAAGCTATATACTTTGGTTACCTA
TGTACCTGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTG
ATCGTCAGATCAAAATAAAGTTATAAAAT

FIG. 150

13727.1

TCGGGAGCCACACTTGGCCCTCTTCTCTCCAAAGSGCCAGAACCTCCTTCTCTTTGGAGAA
TGGGGAGGCCCTCTTGGAGACACAGAGGGTTTCACCTTGGATGACCTCTAGAGAAAATTGCC
CAAGAAGCCCCACCTTCTGGTCCC.AACCTGCAGACCCACAGCAGTCAGTTGGTCAGGCCCT
GCTGTAGAAGGTCACTTGGCTCCATTGCCTGCTTCCAACCAATGGGCAGGAGAGAAGGCC
TTTATTTCTCGCCACCCATTCTCTGTACCAGCACCTCCGTTTTAGTCAGTGTGTGTCCA
GCAACGGTACCGTTTACACAGTCACCTCAGACACACCAATTTACCTCCCTTGCCAAGCTGT
TAGCCTTAGAGTGATTGCAGTGAACACTGTTTACACACCGTGAATCCATTCCCATCAGTCC
ATTCCAGTTGGCACCAGCCTGAACCAATTTGGTACCTGGTGTAACTGGAGTCCTGTTTACA
AGGTGGAGTCGGGGCTTGCTGACTTCTCTTCAATTTGAGGGCAC

13727.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGCAATTCCTTGGTAGT
TTGTCCTGAAACCCTACTGGAGAAGTCAGCATGAGGCACCTACTGAGAGAAGTGCCGAGA
AACTGCTGACTGCATCTGTAAAGAGTTAAACAGTAAAGAGGTAGAAGTGTGTTTCTGAATCA
GAGTGAAGCGTCTCAAGGGTCCCACAGTGGAGGTCCCTGAGCTACCTCCCTTCCGTGAGT
GGGAAGAGTGAAGCCCATGAAGAACTGAGATGAAGCAAGGATGGGGTTCTGGGGCTCCA
GGCAAGGGCTGTGCTCTCTGCAGCAGGGAGCCCCACGAGTCAGAAGAAAAGAACTAATCA
TTTGTGCAAGAAACCTTGCCCCGATACTAGCGGAAAACCTGGAGGCGGNGGTGGGGGCAC
AGGAAAGTGGAAGTGATTTGATCCAGAGCAGAGAAGCCTATGCACAGTGGCCGAGTCCAC
TTGTAAAGTG

13728.1&2

TTCAAGCAATTGTAACAAGTATATCTAGATTAGAGTGAGCAAAATCATATACAAATTTTCAT
TTCCAGTTGCTATTTTCCAAATTTGTTCTGTAAATGTGCTTAAAAATTAATAAATAAACA
GCCAAAAATATATTTATGACAAGAAAGCCATCCCTACATTAATCTTACTTTTCCACTCAC
CGGCCCATCTCTCTCTCTTTTCTTAACTATGCCATTAATAACTGTTCTACTGGGCCGGGGC
TGTGGCTCATGCCGTGTAATCCACGCAATTTGGGAGGCCCAAGGCAGGCGGATCATGAGGTC
AAGAGATTGAGACCATCCTCGCCAAACATGGTGAACCCCCGCTCGACTAAGAATACAAAA
ATTAGCTGGGCATGGTGGCCCATGCCGTGAGTCTCAGCTACTCGGGAGGCTGAGCCAGAA
GAATCGCTTGAACCCGGGAGGCAGAGGATGTCAGTGAGCCCCGATCGGCCACTGCACTCT
AGCCTGGGCGACAGACTGAGACTCTGCTC

13731.1&2

TGTGCCAGTCTACAGCCCTATCAGCAGCCACTCCTTCAGCAACAGATGGGGTCCCCGTTC
AGCCCAACCCCATGAGCCCCCAGCAGCATATGCTCCCAATCAGGCCAGTCCCCACACCT
ACAAGGCCAGCAGATCCCTAAATCTCTCTCCAATCAAGTGGCGCTCTCCCCAGCCTGTCCCTT
CTCCACGGCCACAGTCCCAGCCCCCCCAGTCCAGTCTCTCCCCAAGGATGCAGCCTCAGCC
TTCTCCACACCACGTTTCCCCACAGACAAGTTCCCCACATCCTGGACTGGTAGTTGCCAG
GCCAACCCCATGGAACAAGGGCAATTTGCCAGCC

FIG. 15P

13734.1&2

TGTA AAAA ACTTGT TTTTAA TTTTGTATA AAAATAAAAGGTGGTCCATGCCCACGGGGGCTGTAGGAAATCCAAGCAGACCTGGGGTGGGGGGATGTAGCCTACCTCGGGGGGACTGTCTGTCTCAAAAACGGGCTGAGAAGGCCCGTCAGGGGCCAGGTCCACAGAGAGGCCTGGGATCTCCCCCAACCCGAGGGGCAGACTGGGCAGTGGGGAGCCCCCATCGTGCCCCAGAGGTGGCCACAGGCTGAAGGAGGGGCTGAGGCACCGCAGCCTGCAACCCCCAGGGCTGCAGTCCACTAACTTTTACAGAAATAAAAGGAACATGGGGATGGGGAAAAAAGCACCAGGTGAGGCAAGGGCCGAGGGCCCCAGATCCCAGGAGGGCCAGGACTCAGGATGCCAGCACCACCCTAGCAGCTCCACAGCTCCTGGCACAGGAGGGCCGCCACGGATTGGCACAGGCGGCTGCTGGCCATCAGGCCACATTTGGAGAACTTGTCCCGACAGAGGTGAGCTCGGAGGAGCTCCTCGTGGGCACACACTGTACGAACACAGATCTCCTTGTTAATGACGTACACACGGCGGAGGCTGCGGGGACAGGGCACGGGAGGTCTCAGCCCCACTT

13736.2

ATGGCTGCTGGATTTAGGTGGTAATACGGGGCTGTGGGCCATAAATCTGAAGCCTTGAGAACCTTGGGTCTGGAGAGCCATGAAGAGGGAAGGAAAAAGAGGGCAAGTCCTGAACCTAACC AATGACCTGATGGATTGCTCGACCAAGACACAGAAAGTGAAGTCTGTGTCTGTGCTGTCCACAGACTGGAGTTTTTGGTGTCTGAATAGAGCCAGTTGCTAAAAAATTGGGGGTTTTGGTGAAGAAATCTGATTGTGTGTGTATTCATGTGTGATTTTAAAAATAAACAGCAACAACAATAAAAACCTGACTGGCTGTTTTTCCCTGTATCTTTACAACCTATTTTTGACCCCTGAAAAATATTATACTTCACCTAAATGGAAAGACTGCTGTGTTTGTGGAAATTTTGTAAATTTTAAATTATTTTATTCTCTCTCTCTTTTATTTTCCCTGCAGAAATCCGTTGAGAGACTAATAAGGCTTATATTTAATTGATTTGT.TAATA.TGTATATAAAT

13744.2-13696.2

GCCATGCGAGCGCACTCGGCTGACGCAAGCGCGGGCGGGGAGCACACGGAGCACTGCAGGCGCCGGGTTGGGACAGGCTCTTGGCTGCTGCTGGATAGTCTGTGTTTTCGGGGATCGAGGATACTCACCAGAAACCGAAAAATGCGGAAACCAATCAATGTCCGAGTTACCACCATGGATGCAAGAGCTGGAAGTTTGAATCCAGCCAAATACAACCTGGAAAAACAGCTTTTTGATCAGGTGGTA AAGACTATCGGCTCCGGGAAGTGTGCTACTTTGGCCTCCACTATGTGGATAATAAAGGATTTCTACTCTGGCTGAAGCTGGATAAGAAGCTGTCTGCCAGGAGGTGAGGAAGGAGAAATC CCTCCAGTTCAAGTTCCGGGCCAAAGCTTCAACCTGAAGATGTGGCTGAGGAGCTCATCCAGGACATC.ACCCAGAACTTTCTTCTTCAAGTGAAGGAAGGAATCCTTAGCGATGAGATCTACTGCCCCCTTGARACTCCCTGCTCTTGGGGTCCCTACGCTTGTGCATGCCAAAGTTTGGGGACTACCACCAAGAAG

13746.1&2-13720.1&2

GAAGGAGTGGGATACTCAGCAATGATGCACCCCAATTTCAAAGCGGCCATTTCTCGGCAGGTCTCTGGGACAAATCTCTAGGGTCACTACCTGCAAACTCGTTAGGGTACAACCTGAATGCTGAAAGGAAAAGAACCTGACAGAACCGGACAGAAATTCACCCCGCGATCAGCTGATTGATCTCGGTGACACAGAGTCAATGGCTAAAGATGACGAGGACGTTGTCAATTCCTCGGGCTTTTGAAGTGAGTCCAGCAGCACTGAGGTATTCGGGGCCGTTATGCACCTGGACCACAGCAACAGCTCCCGGGGGGGCCAGGTGCCAGCCTTATCTACATTCCTCAGGGTCTGATCAAAGTTCAGCTGGTACACCAGGGACCGGTACCCGACCGCTCAGGTTGTCCGCTCGGGCTGGGGACC GCGGGGACCAGGGAAGCGCGCCGACAGCTTGGAGACCTGCGGATGCCACAGCCACAGAGGGGTGCTCCCCACCGCGGGCGGGGACCCCGCGGGTTCCGGCTCCAGCAACGGTGGG GCGAGGGCTCTGTTCTTCTTCTTCTCSCCAATTTGCTGCTCCAGAGGACGAAGCCGACGGCGGCCACACGAGCGTCAGGATTAGCACCTTCCGTTTGTAGATGCGGAACCTCATGGTCTCCAGGGCCGGAGCGGACGCTACAGCTCGAGCGTCCGGCGCGCGCTAGGAGCCCGGGCTCGGCTCGTCTCCGTCCTCTCAATTCAGCACACGGGTCCCGGAAAAAGCTCAGCCSCGGTCCCAA CCGCACCTAGCTTCGTTACCTCGGCCTCGCTTC

FIG. 15Q

14347.1

CAGATTTTATTTGTCAGTCGTCAGTGGGGCCGTTTCTTGCTGCTTATTTGTCTGCTAGCCTG
CTCTTCCAGCTGCATGGCCAGGCCAAGGCCCTTGATGACATCTCGCAGGGCTGAGAAATGC
TTGGCTTGCTGGGCCAGAGCAGATTCCGCTTTGTTCAAAAAGGTCTCCAGGTCAATAGTCTG
GCTGCTCGGTCACTCTCAGAGAGCTCAAGCCAGTCTGGTCTTGCTGTATGATCTCCTTGAG
CTCTTCCATAGCCTTCTCCTCCAGCTCCCTGATCTGAGTCATGGCTTCGTTAAAGCTGGACA
TCTGGGAAGACAGTTCCTCCTCTTCTTGATAAAATTGCCTGGAATCAGCGCCCCGTTAGA
GCAGGCTTCCATCTCTTCTGTTTCCATTTGAATCAACTGCTCTCCACTGGGCCCCACTGTGGG
GGCTCAGCTCCTTGACCCTGCTGCATATCTTAAGGGTGTTTAAAGGATATTCACAGGAGCT
TATGCCTGGT

14347.2

CTCCTCTTGGTACATGAACCCAAAGTTGAAAAGTGGACTTAACAAAGTATCTGGAGAACCAA
GCATTCTGCTTTGACTTTGCATTTGATGAAAAGCTTCGAATGAAGTTGTCTACAGGTTTAC
AGCAAGGCCACTGGTACAGACAATCTTTGAAGTTGGAAAAGCAACTTGTTTGCATATGG
CCAGACAGGAAGTGGCAAGACACATACTATGGCGGAGACCTCTCTGGGAAAGCCAGAA
TGCATCCAAAGGGATCTATGCCATGGCCTTCCGGGACGTCTTCTTCTGAAGAATCAACCT
GCTACCGGAAGTTGGGCTGGAAGTCTATGTGACATTCTTCGAGATCTACAATGGGAAGCT
GTTTGACCTGCTCAACAAGAAGCCCAAGCTTGGCGTGCTGGAAGACGGCAAGCAACAGG
TGC.AAGTGGTGGGGGCTTGCAGGAACATCTGGNTAACTCTGCTTGATGATGGCANTCAAG
ATGATCGACATGGGCAGCGCCTCCAGA

14348.2&14350.1&2

TCCCGAATTC.AAGCCACAAAATGGAWAGTGAATGGAAGATGCCTATCATGAACATCAGG
CAAAATCTTTTCCGCCAAGATCTGATGAGACGACAGGAAGAAATTAAGACGCATGGAAGAAC
TTCACAATCAAGAAAATGCAGAAACGTAAAG.AAAATGCAATGAGGCAAGAGCAGGAACGA
CGTAGAAGAGAGGAAGAGATGATGATTCCTCAACGTGAGATGGAAGAACAATGAGGCG
CCAAAGAGAGGAAAGTTACAGCCGAATGGGCTACATGGATCCACGGGAAAGAGACATGC
GAATGGGTGGCGGAGGAGCAATGAACAATGGGAGATCCCTATGGTTCAAGGAGGCCAGAAA
TTTCCACCTCTAGGAGCTGCTGCTGGCATAGCTTATGAAGCTAATCCTGGCGTTCCACCAG
CAACCATGAGTGGTTCCATGATGGGAAGTGACATGGCTACTGAGCGCTTTGGCCAGGGAG
GTGGCGGGCCTGTGGGTGGACAGGCTCTAGAGGAATGGGGCCTGGA.ACTCCAGCAGGAT
ATGGTAGAGGGAGAGAAGAGTACGAACCC

14349.1&2

TTGCTGAAGACCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCCCAGTGACACCAT
GAGAAATGTCAAGGCCAAAGATCCAAAGACAAGGAAGGCATCCCTCCTGACCAGCAKAGGTTG
ATCTTTGCTGGGAAACAGCTGGAAGATGGACGCCACCTGTCTGACTACAACATCCAGAAA
GAGTCCACCCTGACCTGGTCTCCTCTCAGAGGTGGGATGCCAAATCTTCTGTAAGACCC
TGACTGGTAAGACCATCACCTCTGAGCTGGACGCCAGTGACACCATCGAGAATGTCAAGG
CAAAGATCCAAGATAAGGAAGGCATCCCTCCTGATCAGCAGAGGTTGATCTTTGCTGGGA
AACAGCTGGAAGATGGACGCCACCTGTCTGACTACAACATCCAGAAAGAGTCCACTCTCC
ACTTGGTCTCTCGCTTGAGCGGGGGTGTCTAAGTTTCCCTTTTAAAGGTTTCAACAAATTC
ATTGCACTTTCTTTCAATAAACTTCTTCCATT

FIG. 15R

14352.1&2

CGCGGGGTGCGTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA
AGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGTTAAAC
TCTGCTCTGAGCCTCCTTGTCGCTGCAATTTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA
AGAAAAAGGGCCGTTCTGCCATCAACGAAGTGGTAACCCGAGAATACACCATCAACATTC
ACAAGCGCATCCATGGAGTGGGCTTCAAGAAGCGTGACCTCGGGCACTCAAAGAGATTC
GGAAATTTGCCATGAAGGAGATGGGAATCCAGATGTGCGCATTGACACCAGGCTCAACA
AAGCTGTCTGGGCCAAAGGAATAAGGAATGTGCCATACCGAATCCGTGTGCGGCTGTCCA
GAAAACGTAATGAGGATGAAGATTCACCAAAATAAGCTATATACTTTGGTTACCTATGTACC
TGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCCTTTATTTAAATCAACAACTCATCTTCCTCAAGCCCCAGACCATGGTAGGCAGCCC
TCCCTCTCCATCCCCTCACCCCACTTCTAGCCACAGTGAAAGGGAATGGAAAATGAGAAGC
CAGGAGGGCCCCCTGCCAGGGAAGGCTGCCCCAGATGTGTGGTGAGCACAGTCAGTGCAGC
TGTGGCTGGGGCAGCAGCTGCCACAGGCTCCTCCCTATAAAATTAAGTTCCTGCAGCCACAG
CTGTGGGAGAAGCATACTTGTAGAAGCAAGGCCAGTCCAGCATCAGAAGGCAGAGGCCAG
CATCAGTGACTCCCAGCCATGGAATGAACGGAGGACACAGAGCTCAGAGACAGAACAGG
CCAGGGGGAAGAAGGAGAGACAGAAATAGGGCCAGGGCATGGCGGTGAGGGA

14353.2

TGATGAATCTGGGTGGCCTGGCAGTAGCCCCGAGATGATGGGCTCTTCTCTGGGGATCCCAA
CTGGTTCCCTAAGAAAATCCAAGGAGAATCCTCGGAACCTTCTCGGATAACCAGCTGCAAGA
GGGCAAGAACGTGATCGGCTTACAGATGGGCAACCAACCGCGGGCGTCTCANGCAGGCAT
GACTGGCTACGGGATGCCAGGCCAGATCCTCTGATCCCACCCCAGGCCTTGCCCCCTGCCCT
CCCACGAATGGTTAATATATATGTAGATATATATTTTAGCAGTGACATCCAGAGAGCCC
CAGAGCTCTCAAGCTCCTTCTCTCAGGCTGGGGGTTCAAGCCTGTCTGTACCTCTGA
AGTGCTCTGCTGGCATCCTCTCCCCCATGCTTACTAATACATTCCTTCCCCATAGCC

17182.1&2

AGCGGAGCTCCCTCCCCTGGTGGCTACAAACCCACACACGCCAGGCTCAGGCATCGAGCAG
AACTCCAGCGACTGGGTAACCACTGACATTCAGGTGAAGGTGCGGGACACCTACCTGGAT
ACACAGGTGGTGGGACAGACAGGTGTCATCCGCAAGTGTACGGGGGGCATGTGCTCTGTG
TACCTGAAGGACAGTGAGAAAGGTGTCAGCAATTTCCAGTGAGCACCTGGAGCCTATCACC
CCACCAAGAACAACAAGGTGAAAGTGCATCCTGGGGCAGGATCGGGGAAGCCACGGGCGT
CCTACTGAGCATTGATGGTGAGGATGGCAATGTCCGTATGGACCTTGATGAGCAGCTCAAG
ATCCTCAACCTCCGCTTCTCTGGGCAAGCTCCTGGAAGCCTGAAGCAGGCAGGGCCGGTGG
ACTTCGTGCGATGAAGAGTGATCCTCCTTCTTCCCTGGCCCTTGGCTGTGACACAAGATC
CTCCTGCAGGGCTAGGCGGATTGTTCTGGATTTCTTTTGTCTTTTCTTTTAGGTTTCCATCT
TTTCCCTCCCTGGTGGTCAATGGAATCTGAGTAGAGTCTGGGGGAGGGTCCCCACCTTCT
GTACCTCCTCCCCACAGCTTCTTTTGTGTACCGTCTTTCAATAAAAAGAAGCTGTTTGGT
CTA

FIG. 15S

17183.2

GGTTCACAGCACTGCTGCTTGTGTGTTGCCGGCCAGGAATTCCAGGCTCACAAGGCTATCT
TAGCAGCTCGTTCCTCCGGTTTTAGTGCCATGTTTGAACATGAAATGGAGGAGAGCAAAAA
GAATCGAGTTGAAATCAATGATGTGGAGCCTGAAGTTTTTAAGGAAATGATGTGCTTCATT
TACACGGGGAAGGCTCCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC
AAGTATGCCCTCGAGCGCTTAAAGGTCATGTGTGAGGATGCCCTCTGCAGTAACCTGTCCG
TGGAGAACGCTGCAGAAATTCTCATCTGGCCGACCTCCACAGTGCAGATCAGTTGAAAA
CTCAGGCAGTGGATTTCACTCACTATCATGCTTCGGATGTCTTGAGACCTCTTGGG

17186.1&2

TCGTAGCCATTTTTCTGCTTCTTTGGAGAATGACGCCACACTGACTGCTCATTGTGCTTGGT
TCCATGCCAATTGGTGAAATAGAACCCTCATCCGGTAGTGGAGCCGGAGGGACATCTTGTG
ATCAACGGTGATGGTGCGATTTGGAGCATACAGAGCTTGGTGTCTCGCCATACAGGGCA
AAGAGGTTGTGACAAAGAGGAGAGATACGGCATGCCCTGTGCAGCCCTGATGCACAGTTCC
TCTGCTGTGTACTCTCCACTGCCCAGCCGGAGGGGCTCCCTGTCCGACAGATAGAAGATCA
CTCCACCCCTGGCTTG

17187.1&2

TGGCACACTGCTCTTAAGAACTATGAWGATCTGAGATTTTTTGTGTATGTTTTGACTCT
TTTGAGTGGTAATCATATGTGTCTTATAGATGTACATACCTCCTTGCACAAATGGAGGGG
AATTCATTTTCATCACTGGGAGTGTCTTAGTGTATAAAAAACCATGCTCGTATATGGCTTC
AAGTTGTA AAAATGAAAAGTGACTTTAAAAGAAAAATAGGGGATGGTCCAGGATCTCCACTG
ATAAGACTGTTTTTAAGTAACCTTAAGGACCTTTGGGTCTACAAGTATATGTGAAAAAAATG
AGACTTACTGGGTGAGGAAAACTCATTTGTTTAAAGATGGTCTGTGTGTGTGTGTGTGTGTG
TGTGTTG
ACTGKGTAAATATATGTGTGATAATGATTTGCTYTTTGVMACATAAAATTACGVCTGTATA
AGTWCTARATGCMTCCTTGGGKSTTGATYTTCCMAGATATTGATGATAMCCCTTAAATTT
GTAACCYGCCTTTTTCCCTTTGCTYTCMATTAAAGTCTATTCTMAAAG

17191.1&39.1

GGGGGTAGGCTCTTTATTAGACGGTTAATGCTGTACTACAGGGTCAGAGTGCAGTGTAAAGC
AGTGTGAGAGGCCCCGCGTTACGCCCAAGAATGTGGATTTTCTCTCCCTATTGATCACAGTG
GGTGGGTTTTCTTCAGAAAAGCCCCAGACCCAGGGACCACTGAGCTCCAAGGTTAGAAGTG
GAACTGGAAGGCTTCAGTCAATGCTGCTTCCACCGCTTCCAGGCTGGCCAGCAAGGAGGA
GATGCCCCATGACGTGCCAGGTCTCCCATCTGACACCACTGAAGTCTGGTAGGACAGCAG
CCGCACGCTGCTCTGCCAGGAGGCCAATCATGGTAGGCAGCATTGCAGGGTCAAGAGGT
CTGAGTCCGGAATACGAGCAGGGGGCAGGTCCCTGCGGAGAGGCATTCTGCCCTGAAGAC
AGCTCCATTGAGCCCCCTCCAGTACAGGYGTAGTGCCTTGGACCAAGCCCAAGCCTGGTA
AGGGCCGCTGCCAGGGCCACGGCCAGGAGCCA

FIG. 15T

17192.1&2

TAATTTCTTAGTCGTTTGGAAATCCTTAAGCATGCAAAAGCTTTGAACAGAAGGGTTCACAA
AGGAACCAGGGTTGTCTTATGGCATCCAGTTAAGCCAGAGCTGGGAATGCCTCTGGGTCAT
CCACATCAGGAGCAGAAGC.ACTTGACTTGTGGTCCTGCTGCCACGGTTTGGGCGCCACC
ACGCCCACGTCCACCTCGTCCTCCCTGCCGCCACGTCTGGGCGGCCAAGGTCTCCAAA
TTGATCTCCAGCTGAGACGTTATATCA.TTTTGTGGCTTCCGAAATGATGGTCCATAACCG
AATCTTCAGCATGAGCCTCTTCACTCTTTGATTTATGAAGAACAAATCCCTTCTTCCACTGC
CCATCAGCACCTTCA.TTTGGTTTTCGGATATTAATTTCTACTTTTGGCCGGTCTTATTTTGA
ATAGCCTTCCACTCATCCAAAGTCATCTCTTTTGGACCTCCTCTTTTACCTCTTCAACTTCA
TTCTCCTTATTTTTCAGTGTCTGCCACTGGATGATGTTCTTACCTTCAGGTGTTTCTCAGTC
ACATTTGATTGATCCAAGTCAGTTAATTCGTCTTTGACAGTTCCCCAGTTGTGAGATCCGCT
ACCTCCACGTTTGTCTCGTGTTCAGGCCAGATCTATCACTTCC.ACTATGCCTATCAAATT
CACGTTTGGCACGAGAA.TCAAATCCATCTCCTCGGCCCATTCACGTCCACGGCCCCCTCG
ACCTCTTCCAAGACCACCACGACCTCGAATAGGTGGTCAATAATCGGTCTATCAACTGAA
AATTCGCCTCCTTCA.CCCTTTTCTTCAAGTGGCTTTTTCGAATCTTCGTTACAGAGGTGGTCTG
CCTTCTGGTCTTCTATCA.ATTA.TTTTCCCTTCA.CCCTGAAGTTGTTGATCAGGTCTTCTTCC
AACTCGTGC

17193

AAGCGGATGGACCTGACTCAGCCGAATCCTAGCCCCCTTCCCTTGGGCCCTGCTGTGGTGCTC
GACATCAGTGACAGACCGA.AAGCAGCAGACCATCAAGGCTACGGGACGGCCCGGGCGCTT
GCGAAGATGAAGTTTGGCTGCCCTCTCCTTCCGGCAGCCTTATGCTGGCTTTGTCTTAAATG
GAATCAAGACTGTGGAGACCCGCTGGCCTCCTCTGCTGAGCAGCCACCGGA.ACTGTACCA
TCGCCGTCCACATTTGCTCAGAGGACTGGGAAGGCCATGCCGTGTGGGAGCTGCTGGTGG
AGAG.ACTCGGGATGACTCCTGCTCAGATTCAGGCCTTCTCAGGA.AAGGGC.AAAAGTTTG
GTCGAGGAGTGATAGCCGGG.ACTCGTTGACATTTGGGGAAACTTTGCCAATGCCCCGAAGACT
TAACTCCCGATGAGGTTGTGGAACTACAAAATCAAGCTGCACTGACCAACCTGAAGCAGA
ACTACCTGACTGTGATTTCAAACCCCAAGGTGCTTACTGGAGCCCATACCT.TGGAAAGGAG
GCA.AGGATGTATTCCAGGTACACATCCCAAGACCTCATCCCTTTGGGGCATGAAGTGT
GACAAGTGTGGGCTCCTGAAAGCAATGTTCCRGAGAAACCAGCTAAATCATGGCACCTTC
AATTTGCCATCGTGACCCAGACCTGTATAAAATTAGGTTAAAGATGAATTTCCACTGCTTTG
GAGAGTCCCACCCACTAAGCACTGTGCATGTAAACAGGTTCCCTTTGCTCAGATGA.ACGAA
GTAGGGGGTGGGGCTTTCCTTGTGTGATGCCTCCTTAGCCACACAGGCAATGTCTCAAGTA
CTTTGACCTTAGGGTAGAAGGCA.AAGCTGCCAGTAAATGTCTCAGCATTTGCTGCTAAATTT
GGTCTGCTAGTTTCTGCA.TTGTAC.AAAATAAATGTGTTGTAGATGA

FIG. 15U

16443.1.edit

TCGAGCGGCGCCCGGGCAGGTGTGGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGGTGCCCAATTGCTCTCCCACTCCACGGCGATGTGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTCAGGCTGACCTGGTTCTTGGTCACTCTCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGGCTGCCCTTTGGCTTTGGAGATGGTTTTCTCGATGGGGGCTGGGA
GGGCTTTGTTGGAGACCTTGCACCTTGTACTCCTTGCCATTCAACCAGTCCTGGTGCANGAC
GGTGAGGACGCTNACCACACGGTACGNGCTGGTGTACTGCTCCTCCCGGGCTTTGTCTTG
GCATTATGCACCTCCACGCCGTCCACGTACCAATTGAACCTTGACCTCAGGGTCTTCGTGGC
TCACGTCCACCACCACGCATGTAACCTCAAANCTCGGNCGCGANCACGC

16443.2.edit

AGCGTGGTTCGCGGCCGAGGTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACEGTCCTGCA
CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTGAGCCTGACCTGCCTGGTCAA
AGGCTTCTATCCCAGCGACATCGCCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTGGTGGACTCCGACACCTGCCGGGCGGCCGCTCGA

16444.2.edit

AGCGTGGTTNCGGCGGAGGTCCCAACCAAGGCTGCANCTGGATGCCATCAAAGTCTTCTG
CAACATGGAGACTGGTGAGACCTGCGGTGTACCCCACTCAGCCCACTGTGGCCCAAGAA
CTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGTTCCGGCGAGAGCATGAC
CGATGGATTCCAGTTCGAGTATGGCAGGAGGCTCCGACCCTGCCGATGTGGACCTGCCC
GGCGGNCGCTCGA

16445.1.edit

AGCGTGGTTCGCGGCCGAGGTCAAGAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTGGAGACTACTGGAATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTCCAACATGGAGACTGGTGAGACCTGCCGTGTACCCCACTCAGCCCA
GTGTGGGCCAGAAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCCATGTCTGGT
TCGCGGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCACGGCTCCGACCCTG
CCGATGTGGACCTGCCCGGGCGGCCGCTCGA

FIG. 15V

16445.2.edit

TCGAGCGGTCCGCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCGATCGGNCATGCTCTCGCCGAACCAGACATGCCTCTTGNCCTTGGGGTTCT
TGCTGATGTACCAGNTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
ANTCTCCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGACAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGTCCGACCAACGCT

16446.1.edit

TCGAGCGGCCGCCGGGCAGGTCTCTCAGAGCGGTAGCTGTTCTTATTGCCCGGCAGC
CTCCATAGATNAAGTTATTGCANGAGTTCTCTCCACGTCAAAGTACCAGCGTGGGAAGG
ATGCACGGCAAGGCCAGTGACTGCGTTGGCGGTGCAGTATTCTTCATAGTTGAACATATC
GCTGGAGTGGACTTCAGAATCCTGCCTTCTGGGAGCACTTGGGACAGAGGAATCCGCTGC
ATTCTGCTGGTGGACCTCGGCCGACCAACGCT

16446.2.edit

AGCGTGGTCCGGCCCGAGGTCCACCACCAGGAATGCAGCGGATTCTCTGTCCC.AAGTGC
TCCCAGAAGGCAGGATTCTGAAGACCACTCCAGCGATATGTTCA.ACTATGAAGAATACTG
CACCGCCAACGCAGTCACTGGGCCCTTGGCGTGCATCCTTCCCACGCTGGTACTTTGACGTG
GAGAGGAACTCCTGCCAATAACTTCATCTATGGAGGCTGCCGGGGCAATAAGAACAGCTAC
CGCTCTGAGGAGGACCTGCCCGGGCGGGCGCTCGA

16447.1.edit

TCGAGCGGCCGCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCACTCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGCCACAATGGCACATCTTGAGGTCACGGCANGTCCGGGGCGG
GGTTCTTGACCTCGGCCGCGACCAACGCT

FIG. 15W

16447.2.edit

AGCGTGGTCCGGCGCCGAGGTCAAGAAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTG
CCACTCTGGCTGGAAGAGTGGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGA
TCCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCCGTGTACCCCACTCAGCCC
AGTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGG
CTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCT
GCCGATGTGGACCTGCCCGGGCGGCCGCTCGA

16449.1.edit

AGCGTGGTCCGGCGCCGAGGTCTCTGTCAGAGTGGCACTGGTAGAAGNTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
CTGNAATGGGGCCCATGANATGGTTGNCCTGAGAGAGAGCTTCTTGTCTACATTCCGGCGG
GTATGGTCTTGGCCTATGCCCTTATGGGGGTGGCCGTTGNGGGCGGTGNGGTCCGCCTAAAA
CCATGTTCTCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCANAAGTGCCAGGAA
GCTGAATACCATTTCCAGTGTCTATCCAGGGTGGGTGACGAAAGGGGTCTTTTGAAGTGT
GGAAGGAACATCCAAGATCTCTGNTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTG
GGGAACCTCGCTGTCTTTTCTTCCAATCANGGGCTCGCTCTTCTGAATAATTCTTCAGGGC
AATGACATAAATTGTATATTGGGTTCCCGGTTCCAGGCCAG

16450.1.edit

TCGAGCGGGCCGCGCGCCGAGGTCCACCACACCCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCTCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGCCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATGCCCTGAAGAAATATCAGAAGAGCGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAAGTGGTAACCCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCAGATTCAAAAAGACCCCTTTCTGTCACCCACCCCTGG
GTATGACACTGGAAATGGTATTCACTTCTTGGCACTTCTGCTCAGCAACCCAGTGTGGG
CAACAAATGATCTTTGANGAAGATGCTTTAGGCGGACCACACCCGCCACAACGGGCCACC
CCCATAGGCCATAGGCCAAGAACAATCCGTCNGCAATGTAGGACAAGAAGCTCTNTCTCAN
ACAANCATCTCATGGGCCCCATTCCANGACACTTCTGAGTACATCANTTCAATGGCATCCTG
GTGGCACTGATAAAAAACCTTACAGTTA

16450.2.edit

AGCGTGGTCCGGCGCCGAGGTCTCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
CTGGAATGGGGCCCATGAGATGGTTGCTGTGAGAGAGAGCTTCTTGTCTACATTCCGGCGGG
TATGGTCTTGGCCTATGCCCTTATCGGGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAAAAAC
CATGTTCTCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCTATCCCAAGGGTGGGTGACGAAAGGGGTCTTTTGAAGTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTCTTCCAATCANGGGCTCGCTCTTCTGAATAATTCTTCAGGGC
AATGACATAAATTGTATATTGGGNTCCCGGCTNACGCCAATAATAATAACCCCTCTGTGACA
CCANGGCGGGCCCCAAGGANCAT

FIG. 15X

16451.1.edit

AGCGTGGTCCGCGGCCGAGGTCCCTACCAGAGGTACCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGTCATTTGAGATGTGATTCACTAGATGGTGGCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA

16451.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTGTATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTGAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCAGGATCATCCGTAGGTTGGTTCAAG
CCTTCGNTGACAGAGTTGCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTTTCAGTGCCTCCACTATGATGTTGTAGGTGGTACCTCTGGTGAGGACCTCGGCCGCGAC
CACGCT

16452.1.edit

AGCGTGGCCGCGGCCGAGGTCCATTGGCTGGAACGGCATCAACTTGGAAAGCCAGTGATCG
TCTCAGCCTTGGTTCTCCAGCTAATGGTGATGGNGGTCTCAGTAGCATCTGTACACAGAGC
CCTTCTTGGTGGCTGACATTCTCCAGACTGGTGACAACACCCCTGAGCTGGTCTGCTTGT
AAAGTGTCTTAAAGATCATAGACACTCACTTCATATTTGGCGNCCACCATAAGTCTTGATA
CAACCACGGAATGACCTGTCAGGAAC

16452.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCCTCAGACCGGGTTCTGAGTACACAGTCAGTGTGGTTGC
CTTGACGATGATATGGAGAGCCAGCCCCCTGATTGGAACCCAGTCCACAGCTATTCCTGCA
CCAAGTACCTGAAGTTCACTCAGGTCAACCCACAAGCCTGAGCGCCCAGTGGACACCA
CCCAATGTTACGCTCACTGGATATCGAGTGGGGTGACCCCCAAGGAGAAGACCGGACCA
ATGAAAGAAATCAACCTTCTCCTGACAGCTCATCCGTGGTTGTATCAGGACTTATGGCGG
CCACCAAAATGAAAGTGAGTGCTATGCTCTTAAGGACACTTTGACAAGCAGACCAGTCA
GGGTGTTGTCACCACTCTGGAGAATGTCAGCCCACCAAGAAGGGCTCGTGTGACAGATGC
TACTGAGACCACCATCACCAATTAGCTGGAGAACCAAGACTGAGACGATCACTGGCTTCCA
AGTTGATGCCGTTCCAGCCAATGGACCTCGGCCGCGACCAAGCTT

FIG. 15Y

13727.1

TCGGGAGCCACACTTGGCCCTCTTCCTCTCCAAAGSGCCAGAACCTCCTTCTCTTTGGAGAA
TGGGGAGGCCCTCTTGGGAGACACAGAGGGTTTCACCTTGGATGACCTCTAGAGAAAATTGCC
CAAGAAGCCCACCTTCTGGTCCCAACCTGCAGACCCACAGCAGTCAGTTGGTCAGGCCCCT
GCTGTAGAAGGTCACCTTGGCTCCATTGCCTGCTTCCAACCAATGGGCAGGAGAGAAGGCC
TTTATTTCTCGCCACCCATTCTCTCTGTACCAGCACCTCCGTTTTTCAGTCAGTGTGTGCCA
GCAACGGTACCGTTTACACAGTCACCTCAGACACACCAATTTACCTCCCTTGCCAAGCTGT
TAGCCTTAGAGTGATTGCAGTGAACACTGTTTACACACCGTGAATCCATTCCCATCAGTCC
ATTCCAGTTGGCACCAGCCTGAACCAATTTGGTACCTGGTGTAACTGGAGTCCTGTTTACA
AGGTGGAGTCGGGGCTTGCTGACTTCTCTTCAATTTGAGGGCAC

13727.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGCAATTCCTTGGTAGT
TTGTCTGAAACCCTACTGGAGAAGTCAGCATGAGGCACCTACTGAGAGAAGTGCCCA
AACTGCTGACTGCATCTGTAAAGAGTTAACAGTAAAGAGGTAGAAGTGTGTTTCTGAATCA
GAGTGAAGCGTCTCAAGGGTCCACAGTGGAGGTCCCTGAGCTACCTCCCTTCCGTGAGT
GGGAAGAGTGAAGCCCATGAAGAAGTGAAGTGAAGCAAGGATGGGGTTCCTGGGCTCCA
GGCAAGGGCTGTGCTCTCTGCAGCAGGGAGCCCCACGAGTCAGAAGAAAAGAACTAATCA
TTTGTGCAAGAAACCTTGCCCGGATACTAGCGGAAAAGTGGAGGCGGNGGTGGGGGCAC
AGGAAAGTGGAAAGTGATTTGATGGAGAGCAGAGAAGCCTATGCACAGTGGCCGAGTCCAC
TTGTAAGTG

13728.1&2

TTCAAGCAATTGTAACAAGTATATCTAGATTAGAGTGAGCAAAATCATATACAAATTTTCAT
TTCCAGTTGCTATTTTCCAAATTTGTTCTGTAATGTGCTTAAAAATTACTTAAAAATTAACAA
GCCAAAAATTATAATATGACAAGAAAGCCATCCCTACATTAATCTTACTTTTCCACTCAC
CGCCCCATCTCTTCTCTTTTTCTTAATATGCCATTAATACTGTTCTACTGGGCGGGCG
TGTGGCTCATGGCTGTAAATCCAGCAATTTGGGAGGCCAAGGCAGGCGGATCATGAGGTC
AAGAGATTGAGACCATCCTGGCCAAACATGGTGAAACCCCGCCTCGACTAAGAATACAAAA
ATTAGCTGGGCATGGTGGGCGCATGCCCTGTAGTCTCAGCTACTCGGGAGGCTGAGCCAGAA
GAATCGCTTGAACCCGGGAGGCAGAGGATCCAGTGAGCCCCGATCGCGCCACTGCACTCT
AGCCTGGGCGACAGACTGAGACTCTGCTC

13731.1&2

TGTGCCAGTCTACAGGCCTATCAGCAGCGACTCCTTCAGCAACAGATGGGGTCCCTGTTC
AGCCCAACCCCATGAGCCCCCAGCAGCATATGCTCCCAAAATCAGGCCAGTCCCCACACCT
ACAAGGCCAGCAGATCCCTAATCTCTCTCCAAATCAAGTGCGCTCTCCCCAGCCTGTCCCTT
CTCCACGGCCACAGTCCCAGCCCCCCTCAGTCTCTCCCCAAGGATGCAGCCTCAGCC
TTCTCCACACCAGTTTCCCCACAGACAAGTTCCCCACATCCTGGACTGGTAGTTGCCAG
GCCAACCCCATGGAACAAGGGCATTTTGGCAGCC

FIG. 15P

13734.1&2

TGTA AAAA ACTTGT TTTTAA TTTTGTATA AAAATAAAGGTGGTCCATGCCACGGGGGGCTGTAG
GGAAATCCAAGCAGACCACTGGGGTGGGGGATGTAGCCTACCTCGGGGGACTGTCTGT
CCTCAAAAACGGGCTGAGAAGGCCCCGTCAGGGGGCCAGGTCCCACAGAGAGGCCTGGGATA
CTCCCCCAACCCGAGGGGCAGACTGGGCAGTGGGGAGCCCCCATCGTGCCCCAGAGGTGG
CCACAGGCTGAAGGAGGGCCCTGAGGCACCGCAGCCTGCAACCCCCAGGGCTGCAGTCCA
CTAACTTTTTACAGAATAAAAAGGAACATGGGGATGGGGAAAAAAGCACCAGGTCAAGGCA
GGGCCCCGAGGGCCCCAGATCCCAGGAGGGCCAGGACTCAGGATGCCAGCACCCACCTAGC
AGTCCCACAGCTCCTGGCACAGGAGGGCCGCCACGGATTGGCACAGGCCGCTGCTGGCCA
TCACGCCACATTTGGAGAACTTGTCCCGACAGAGGTGAGCTCGGAGGAGCTCCTCGTGGGC
ACACACTGTACGAACACAGATCTCCTTGTTAATGACGTACACACGGCGGAGGCTGCGGGG
ACAGGGCACGGGAGGTCTCAGCCCCACTT

13736.2

ATGGCTGCTGGATTTAGGTGGTAATAGGGGCTGTGGGCCATAAATCTGAAGCCTTGAGAA
CCTTGGGTCTGGAGAGCCATGAAGAGGGAAGGAAAAAGAGGGCAAGTCTGAACCTAACC
AATGACCTGATGGATTGCTCGACCAAGACACAGAAGTGAAGTCTGTGTCTGTGCACTTCCC
ACAGACTGGAGTTTTTGGTGCTGAATAGAGCCAGTTGCTAAAAAATTGGGGGTTTGGTGA
AGAAATCTGATTGTTGTGTGTTTCAATGTGTGATTTTAAAAATAAACAGCAACAACAATA
AAAACCTGACTGGCTGTTTTTCCCTGTATCTTTACAACATATTTTTGACCTCTGAAAA
TTATTATACTTCACCTAAATGGAAGACTGCTGTGTTGTGGAAATTTTGTAAATTTTTAATT
TATTTATCTCTCTCCTTTTAAATTTCCCTGCAGAAATCCGTTGACAGACTAATAAGGCTTA
ATATTTAATTGATTTGTTAATATGTATATAAAT

13744.2-13696.2

GGCATGCGACCGCACTCGGCGGACCGCAAGCGCGGGCGGGGAGCACACGGAGCACTGCAGG
CGCCGGGTTGGGACAGCGCTTTGGCTGCTGCTGGATAGTCTGTGTTTTCGGGGATCGAGGAT
ACTCACCAGAAAACCGAAAAATCCCGAAACCAATCAATGTCCGAGTTACCACCATGGATGCA
GAGCTGGAGTTTGCAATCCAGCCAAAATACAACCTGGAAAACAGCTTTTTGATCAGGTGGTA
AAGACTATCGGCTCCGGGAACTGTGCTACTTTGGCTCCACTATGTGGATAATAAAGGAT
TTCTACCTGGCTGAACCTCGCATAGAAGCTGCTGCCCAGGAGGTCAGGAAGGAGAAATC
CCCTCCAGTTCAAGTTCCGGGGCCAAAGTTCTACCTGAAGATGTGGCTGAGGAGCTCATCC
AGGACATCACCAGAAACTTTCTTCTTCAAGTGAAGGAAGGAATCCTTAGCGATGAGAT
CTACTGCCCCCTTGARACTCCCGTCTCTTGGCGTCTACGCTTGTGCATGCCAAGTTTGG
GGACTACCACCAAGAAG

13746.1&2-13720.1&2

GAAGGAGTGGGATACTCAGCAATTGATGCACCCCAATTTCAAAGCGGCATTCTTCGGCAG
GTCTCTGGGACAATCTCTAGGGTCACTACCTGCAAACTCGTTAGGGTACAACCTGAATGCTG
AAAGGAAAGAACACCTGGCAGAACCGGACAGAAATTCACCCGGCGATCAGCTGATTGATC
TCGCTCGACCAGAAGTCAATGGCTAAAGATGACGAGGACGTTGTCAATTCCTCGGGCTTTTC
GAAGTGAGTCCAGCAGCACTCTGAGGTATTCGGGGCCGTTATGCCACCTGGACCACAGCA
CCAGCTCCCCGGGGGGGGCCAGGTGCCAGCCTTATCTACATTCCTCAGGGTCTGATCAAAGTT
CAGCTGGTACACCAGGGACCGGTACCGCAGCGTCAGGTTGTCCGCTCGGGCTGGGGGACC
GCCGGGACCCAGGGAAGCCGGCCAGACCTTGGAGACCTGCGGATGCCACAGCCACAGAG
GGGTGGTCCCCACCGCGGGCCGGGGGACCCCGCGCGGTTCCGGCTCCAGCAACGGTGGG
GCGAGGGCTCTGTTCTTCTTTGTGCGCCATTTGCTGCTCCAGAGGACGAAGCCGCAGGCGG
CCACCACGAGCGTCAGGATTAGCACCTTCCGTTTGTAGATGCCGAACCTCATGGTCTCCAG
GGCCGGGAGCGCAGCTACAGCTCGAGCGTCCGGCGCGCGCTAGGAGCCCGCGCTCGGCT
TCGTCTCCGTCTCTCCAATCAGCACCCAGGGTCCCGGAAAAAGCTCAGCCSCGGTCCCAA
CCGACCCCTAGCTTCGTTACCTCGGCTCGCTTG

FIG. 15Q

14347.1

CAGATTTTATTTGCAGTCGTCCTGGGGCCGTTTCTTGCTGCTTATTTGTCTGCTAGCCTG
CTCTCCAGCTGCATGGCCAGGCCGAAGGCCTTGATGACATCTCGCAGGGCTGAGAAATGC
TTGGCTTGCTGGGCCAGAGCAGATTCCGCTTTGTTCAAAAGGTCTCCAGGTCATAGTCTG
GCTGCTCGGTCACTCAGAGAGCTCAAGCCAGTCTGGTCTTGCTGTATGATCTCCTTGAG
CTCTCCATAGCCTTCTCCTCCAGCTCCCTGATCTGAGTCATGGCTTCGTTAAAGCTGGACA
TCTGGGAAGACAGTTCTCCTCTTCTTGGATAAAATGCTGGAATCAGCGCCCCGTTAGA
GCAGGCTTCCATCTCTTCTGTTTCCATTGAAATCAACTGCTCTCCACTGGGCCCCACTGTGGG
GGCTCAGCTCCTTGACCCTGCTGCATATCTTAAGGGTGTTTAAAGGATATTCACAGGAGCT
TATGCCTGGT

14347.2

CTCCTCTTGGTACATGAACCCAAGTTGAAAGTGGACTTAACAAAGTATCTGGAGAACCAA
GCATTCTGCTTTGACTTTGCAATTTGATGAAACAGCTTCGAATGAAGTTGTCTACAGGTTTAC
AGCAAGGCCACTGGTACAGACAATCTTTGAAGGTGGAAAAGCAACTTGTGTTTGCATATGG
CCAGACAGGAAGTGGCAAGACACATACTATGGCGGAGACCTCTCTGGGAAAGCCAGAA
TGCATCCAAAGGGATCTATGCCATGGCCTTCGGGGACGTCTTCTTCTGAAGAATCAACCCT
GCTACCGGAAGTTGGGCTGGAAGTCTATGTGACATTCTTCGAGATCTACAATGGGAAGCT
GTTTGACCTGCTCAACAAGAAGGCCAAAGCTTGGCGGTGCTGGAAGACGCCAAGCAACAGG
TGCAAGTGGTGGGGGCTTGCAGGAACATCTGONTAACTCTGCTTGATGATGCCANTCAAG
ATGATCGACATGGGCAGCGCCTGCAGA

14348.2&14350.1&2

TCCCGAATTCAGCCACAAATTCGAWAGTGAATGGAAGATGCCATATCATGAACATCAGG
CAAACTTTTTGCCCAAGATCTGATGAGACGACAGGAAGAATTAAGACGCATGGAAGAAC
TTCACAATCAAGAAATGCCAGAAAGCTAAAGCAATGCAATTGAGGCAAGAGGAGGAACGA
CGTAGAAGAGAGGAAGAGATGATGATTCCTCAACGTGAGATGGAAGAACAATGAGGCG
CCAAAGAGAGGAAAGTTACAGCCGAAATGGGCTACATGGATCCACGGGAAAGAGACATGC
GAATGGGTGGCGGAGGACCAATGAACATGGGAGATCCCTATGGTTTCAAGGAGGCCAGAAA
TTTCCACCTCTAGGAGGTGGTGGTGGCATAGCTTATGAAGCTAATCCTGGCGTTCCACCAG
CAACCATGAGTGGTTCCATGATGGGAAGTGACATGCGTACTGAGCGCTTTGGCCAGGGAG
GTGCGGGGCTGTGGGTGGACAGGGTCTAGAGCAATGGGGCCTGGAACCTCCAGCAGGAT
ATGGTAGAGGGAGAGAAGAGTACGAAGCC

14349.1&2

TTCGTCAAGACCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCCCGACTGACACCAT
GAGAAATGTCAAGGCAAGATCCAAAGACAAGGAAGGCAATCCCTCCTGACCAGCAKAGGTTG
ATGTTTGCTGGGAAACAGCTGGAAGATGGACGCACCTGTCTGACTACAACATCCAGAAA
GAGTCCACCCTGCACCTGGTCCCTGCTCAGAGGTGGGATGCAAACTTCTGTGAAGACCC
TGACTGGTAAGACCATCACCTGAGGCTGGAGCCAGTGACACCATCGAGAATGTCAAGG
CAAGATCCAAAGATAAGGAAGGCCATCCCTCTGATCAGCAGAGGTTGATCTTTGCTGGGA
AACAGCTGGAAGATGGACGCACCTGTCTGACTACAACATCCAGAAAGAGTCCACTCTGC
ACTTGGTCTGCGCTTCAAGGGGGGCTGTCTAAAGTTTCCCTTTTAAAGGTTTCAACAAATTC
ATTGCACCTTCTTCAATAAAGTTGTTCCATT

FIG. 15R

14352.1&2

GCGCGGGTGCGTGGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA
AGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGTTAAAC
TCTGCTCTGAGCCTCCTTGTCGCCTGCA TTTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA
AGAAAAAGGGCCGTTCTGCCATCAACGAAGTGTAACCCGAGAATACACCATCAACATTC
ACAAGCGCATCCATGGAGTGGGCTTCAAGAAGCGTGACCTCGGGCACTCAAAGAGATTC
GGAAATTTGCCATGAAGGAGATGGGAATCCAGATGTGCGCATTGACACCAGGCTCAACA
AAGCTGTCTGGGGCAAAGGAATAAGGAATGTGCCATACCGAATCCGTGTGCGGCTGTCCA
GAAAACGTAATGAGGATGAAGATTCACCAAAATAAGCTATATACTTTGGTTACCTATGTACC
TGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCTTTATTTAAATCAACAAACTCATCTTCCTCAAGCCCCAGACCATGGTAGGCAGCCC
TCCCTCTCCATCCCCCTACCCCACCCCTTAGCCACAGTGAAGGGAATGGAAAATGAGAAGC
CAGGAGGGCCCCCTGCCAGGGAAGGCTGCCCCAGATGTGTGGTGAGCACAGTCAGTGCAGC
TGTGGCTGGGGCAGCAGCTGCCACAGGCTCCTCCCTATAAATTAAGTTCTTGCCAGCCACAG
CTGTGGGAGAAGCATACTTGTAGAAGCAAGGCCAGTCCAGCATCAGAAGGCAGAGGCAG
CATCAGTGACTCCAGCCATGGAATGAACGGAGGACACAGAGCTCAGAGACAGAACAGG
CCAGGGGGAAGAAGGAGAGACAGAAATAGGCCAGGGCATGGCGGTGAGGGA

14353.2

TGATGAATCTGGGTGGCCTGGCAGTAGCCCCAGATGATGGGCTCTTCTCTGGGGATCCCAA
CTGGTTCCCTAAGAAAATCCAAGGAGAAATCCTCGGAACCTTCTCGGATAACCAGCTGCAAGA
GGGCAAGAACGTGATCGGCTTACAGATGGGCACCAACCGCGGGGCGTCTCANGCAGGCAT
GACTGGCTACGGGATGCCACGGCAGATCCTCTGATCCCACCCCAGGCCTTGCCCCCTGCCCT
CCCACGAATGGTTAATATATATGTAGATATATTTTAGCAGTGACATTCAGAGAGCCCC
CAGAGCTCTCAAGCTCCTTCTGTACGGGTGGGGGTTCAAGCCTGTCTCTGACCTCTGA
AGTGCCCTGCTGCCATCCTCTCCCCCATGCTTACTAATACATTCCTTCCCCATAGCC

17182.1&2

AGCGGAGCTCCCTCCCTGGTGGCTACAACCCACACACGCCAGGCTCAGGCATCGAGCAG
AACTCCAGCGACTGGGTAACCACTGACATTCAGGTGAAGGTGCGGGACACCTACCTGGAT
ACACAGGTGGTGGGACAGACAGGTGTATCCGCAAGTGTACGGGGGGCATGTGCTCTGTG
TACCTGAAGGACAGTGAGAAGGTTGTCAGCATTTCCAGTGAGCACCTGGAGCCTATCACC
CCACCAAGAACAACAAGGTGAAAGTGATCCTGGGGCAGGATCGGGAAAGCCACGGGGCT
CCTACTGAGCATTGATGGTGAGGATGCCATTGTCCGTATGGACCTTGATGAGCAGCTCAAG
ATCCTCAACCTCCGCTTCCTGGGCAAGCTCCTGGAAGCCTGAAGCAGGCAGGGCCGGTGG
ACTTCGTGCGATGAAGAGTGATCCTCCTTCCTTCCTGGCCCTTGGCTGTGACACAAGATC
CTCCTGCAGGGCTAGGCGCATTCCTGTGATTTCCTTTGTTTTCTTTTAGGTTTCCATCT
TTTCCCTCCCTGGTGTCTATTGGAATCTGAGTAGAGTCTGGGGGAGGGTCCCCACCTTCCT
GTACCTCCTCCCCACAGCTTCCTTTTGTGTACCGTCTTTCAATAAAAAGAAGCTGTTTGGT
CTA

FIG. 15S

17183.2

GGTTCACAGCACTGCTGCTTGTGTGTTGCCGGCCAGGAATTCCAGGCTCACAAGGCTATCT
TAGCAGCTCGTTCTCCGGTTTTAGTGCCATGTTTGAACATGAAATGGAGGAGAGCAAAAA
GAATCGAGTTGAAATCAATGATGTGGAGCCTGAAGTTTTTAAGGAAATGATGTGCTTCATT
TACACGGGGAAGGCTCCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC
AAGTATGCCCTGGAGCGCTTAAAGGTCAATGTGTGAGGATGCCCTCTGCAGTAACCTGTCCG
TGGAGAACGCTGCAGAAATTCTCATCCTGGCCGACCTCCACAGTGCAGATCAGTTGAAAA
CTCAGGCAGTGGATTTCATCAACTATCATGCTTCGGATGTCTTGGAGACCTCTTGGG

17186.1&2

TCGTAGCCAATTTTCTGCTTCTTTGGAGAATGACGCCACACTGACTGCTCATTGTCGTTGGT
TCCATGCCAATTGGTGAATAGAACCTCATCCGGTAGTGGAGCCGGAGGGACATCTTGTG
ATCAACGGTGATGGTGGGATTGGAGCATACCAGAGCTTGGTGTCTCGCCATACAGGGCA
AAGAGGTTGTGACAAAGAGGAGAGATACGGCATGCCTGTGCAGCCCTGATGCACAGTTCC
TCTGCTGTGTA CTCTCCACTGCCAGCCGGAGGGGCTCCCTGTCCGACAGATAGAAGATCA
CTTCCACCCCTGGCTTG

17187.1&2

TGGCACACTGCTCTTAAGAACTATGAWGATCTGAGATTTTTTGTGTATGTTTTGACTCT
TTTGAGTGGAATCATATGTGTCTTATAGATGTACATACCTCCTTGCACAAATGGAGGGG
AATTCATTTTCATCACTGGGAGTGTCCTTAGTGTATAAAAACCATGCTCGTATATGGCTTC
AAGTTGTAAAAATGAAAGTGACTTAAAGAAAAATAGGGGATGGTCCAGGATCTCCACTG
ATAAGACTGTTTTAAGTAACTAAGGACCTTGGGTCTACAAGTATATGTGAAAAAAATG
AGACTTACTGGGTGAGGAAATTCATTCTTAAAGATGGTCTGTGTGTGTGTGTGTGTGTGT
TGTGTTGT
ACTGKGTAAATATATGTYTCATAATGATTTGCTYTTTGVCMACTAAAATTACGVCTGTATA
AGTWCTARATGCMTCCTTGGGKSTTGATYTTCCMAGATATTGATGATAMCCCTTAAAAAT
GTAACCYGCCTTTTCCCTTTCCTYTCMAATAAAGTCTATTCTMAAAG

17191.1&39.1

GGGGGTAGGCTCTTTATTAGACGGTTATTCCTGTACTACAGGGTCAGAGTGCAGTGTAAGC
AGTGTACAGAGGCCCCGGTTACGCCAAGAATGTGGATTTTCTCTCCCTATTGATCACAGTG
GGTGGGTTTCTTCAGAAAAGCCCCAGAGGCAGGGACCAGTGAGCTCCAAGGTTAGAAGTG
GAACTGGAAGGCTTCAGTCACATGCTGCTTCCACGCTTCCAGGCTGGCCAGCAAGGAGGA
GATGCCCCATGACGTGCCAGGTCTCCCCATCTGACACCAGTGAAGTCTGGTAGGACAGCAG
CCGCACGCCTGCCTCTGCCAGGAGGCCAATCATGGTAGGCAGCAATTGCAGGGTCAGAGGT
CTGAGTCCGGAATAGGAGCAGGGCCAGGTCCCTGCGGAGAGGCACCTTCTGGCCTGAAGAC
AGCTCCATTGAGCCCCCTGCAGTACAGGYGTAGTGCCCTTGGACCAAGCCCCACAGCCTGGTA
AGGGGGCCCTGCCAGGGCCACGGCCAGGAGCCA

FIG. 15T

17192.1&2

TAATTTCTTAGTCGTTTGGAAATCCTTAAGCATGCAAAAGCTTTGAACAGAAGGGTTACAAA
AGGAACCAGGGTTGTCTTATGGCATCCAGTTAAGCCAGAGCTGGGAATGCCTCTGGGTTCAT
CCACATCAGGAGCAGAAGCACTTGACTTGTGGTCTGCTGCCACGGTTTGGGCGCCACC
ACGCCCACGTCCACCTCGTCTCCCTGCCGCCACGTCTGGGCGGCCAAGGTCTCCAAAA
TTGATCTCCAGCTGAGACGTTATATCATTTGCTGGCTTCCGAAAATGATGGTCCATAACCG
AATCTTCAGCATGAGCCTCTTCACTCTTTGATTTATGAAGAACAAATCCCTTCTTCCACTGC
CCATCAGCACCTTCATTTGGTTTTCGGATATTAATTTCTACTTTTGCCCGGTCTTAATTTGA
ATAGCCTTCCACTCATCCAAAGTCATCTCTTTTGACCCCTCCTCTTTTACCTCTTCAACTTCA
TTCTCCTTAATTTTCAGTGTCTGCCACTGGATGATGTTCTTACCTTCAGGTGTTTCTCAGTC
ACATTTGATTGATCCAAGTCAGTTAATTCGTCTTTGACAGTTCCCCAGTTGTGAGATCCGCT
ACCTCCACGTTTGTCTCGTGTCTCAGGCCAGATCTATCACTTCCACTATGCCTATCAAATT
CAGTTTGGCCACGAGAATCAAATCCATCTCCTCGGCCATTCCACGTCCACGGCCCCCTCG
ACCTCTTCCAAGACCACCACGACCTCGAATAGGTGCGTCAATAATCGGTCTATCAACTGAA
AATTCGCTCTCTTCACTCTTTCTTCAAGTGGCTTTTGAATCTTTCGTTACAGAGGTGGTCG
CCTTCTGGTCTTCTATCAATTAATTTCCCTTCACTCTGAAGTTGTTGATCAGGTCTTCTTCC
AACTCGTGC

17193

AACGGGATGGACCTGACTCAGCCGAATCCTAGCCCCCTTCCCTTGGGCCCTGCTGTGGTGCTC
GACATCAGTGACAGACCGAAGCAGCAGCATCAAGGCTACGGGAGGCCCGGGCGCTT
GCGAAGATGAAGTTTGGCTCCCTCTCCTTCCGGCAGCCTTATGCTGGCTTTGTCTTAAATG
GAATCAAGACTGTGGAGACCCCTGCGCTCCTCTGCTGAGCAGCCACCGGAAGTGTACCA
TCGCCGTCCACATTCCTCAGAGGGAAGTGGGAAGGCGATGCCTGTCCGGAGCTGCTGGTGG
AGACACTCGGGATGACTCCTGCTCAGATTCAGGCCTTCTCAGGAAGGGGAAAAAGTTTG
GTCGAGGAGTGATACCGGGACTCGTTGACATTTGGGGAAACTTTGCAATGCCCGGAAGACT
TAACTCCCGATGAGGTTCTGGAAGTACAAAAATCAAGCTGCACTGACCAACCTGAAGCAGA
AGTACCTGACTGTGATTTCAAAACCCAGGTGCTTACTGGAGCCCATACCTTGGAAAGGAG
GCAAGGATGTATTCAGGTACACATCCAGAGCACCTGATCCCTTTGGGGCATGAAGTGT
GACAAGTGTGGGCTCCTGAAAGGAATGTTCCRGAGAAACCAGCTAAATCATGGCACCTTC
AATTTGCCATCGTGACCCAGACCTGTATAAATTAGGTTAAAGATGAATTTCCACTGCTTTG
GAGAGTCCCAACCACTAAGCACTGTGCATGTAAACAGGTTCTTTGCTCAGATGAAGGAA
GTACGGGGGTGGGGCTTCTTGTGTGATGCCCTCCTTAGGCACACAGGCAATGCTCTCAAGTA
CTTTGACCTTAGGGTAGAAGGCAAGCTGCCAGTAAATGTCTCAGCATTGCTGCTAAATTT
GGTCTCTAGTTTCTGGAATGTACAAATAAATGTGTTGTAGATGA

FIG. 15U

16443.1.edit

TCGAGCGGCGCCCGGGCAGGTGTCGGAGTCCAGCACGGGAGGCGTGGTCTTGTAAGTTGT
TCTCCGGGTGCCCATTCCTCTCCCACTCCACGGCGATGTCGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTCAGGCTGACCTGGTTCTTGGTCATCTCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGGCTGCCCTTTGCCTTTGAGATGGTTTTCTCGATGGGGGCTGGGA
GGGCTTTGTTGGAGACCTTGCACTTGTACTCCTTGCCATTCAACCAGTCCTGGTGCANGAC
GGTGAGGACGCTNACCACACGGTACGNGCTGGTGTACTGCTCCTCCCGCGGCTTTGTCTTG
GCATTATGCACCTCCACGCCGTCCACGTACCAATTGAACCTTGACCTCAGGGTCTTCGTGGC
TCACGTCCACCACCACGCAATGTAACCTCAAANCTCGGNCGGGANCACGC

16443.2.edit

AGCGTGGTTCGCGGCCGAGGTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACEGTCCTGCA
CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTGAGCCTGACCTGCCTGGTCAA
AGGCTTCTATCCCAGCGACATCGCCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTGGTGGACTCCGACACCTGCCGGGCGGCGGCTCGA

16444.2.edit

ACCGTGGTTNCGGCGCGAGGTCCCAACCAAGGCTGCANCTGGATGCCATCAAAGTCTTCTG
CAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCAGTGTGCCCCAGAAGAA
CTGCTACATCAGCAAGAAGCCCCAAGGACAAGAGCCATGTCTGGTTCCGGCGAGAGCATGAC
CGATGGATTCCAAGTTCCAGTATGGCCGCCAGGGCTCCGACCCTGCCGATGTGGACCTGCCC
GGCGGNCGGCTCGA

16445.1.edit

AGCGTGGTTCGCGGCCGAGGTCAAGAACCCCCCGCCACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTGGAGAGTACTGGAATGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCCGTGTACCCCACTCAGCCCA
GTGTGGGCCAGAAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGCCATGTCTGGT
TCGCCGAGAGCATGACCGATGGATTCCAGTTCCAGTATGCCGGCCAGGGCTCCGACCCTG
CCGATGTGGACCTGCCCGGGCGGCGGCTCGA

FIG. 15V

16445.2.edit

TCGAGCGGTCGCCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCGATCGGNCAATGCTCTCGCCGAACCAGACATGCCTCTTGNCCTTGGGGTTCT
TGCTGATGTACCAGNTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
ANTCTCCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGACAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGTGCGGACCAACGCT

16446.1.edit

TCGAGCGGCCGCCCCGGGCAGGTCTCTCTCAGAGCGGTAGCTGTTCTTATTGCCCCGGCAGC
CTCCATAGATNAAGTTATTGCANGAGTTCTCTCCACGTCAAAGTACCAGCGTGGGAAGG
ATGCACGGCAAGGCCAGTGAAGTGGCGGTGCAGTATTCTTCATAGTTGAACATATC
GCTGGAGTGGACTTCAGAACTCTGCTTCTGGGAGCACTTGGGACAGAGGAATCCGCTGC
ATTCTGCTGGTGGACCTCGGCCGCGACCAACGCT

16446.2.edit

AGCGTGGTCCGCGCCGAGGTCCACCAGCAGGAATGCAGCGGATTCTCTGTCCCAAGTGC
TCCCAGAAGGCAGGATTCTGAAGACCACTCCAGCGATATGTTCAACTATGAAGAATACTG
CACCGCCAACGCAGTCACTGGGCTTGGCGTGCATCCTTCCCACGCTGGTACTTTGACGTG
GAGAGGAACCTCTGCAATAACTTCATCTATGGAGGCTGCCGGGGCAATAAGAACAGCTAC
CGCTCTGAGGAGGACCTGCCCGGGCGGGCGCTCGA

16447.1.edit

TCGAGCGGCCGCCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTGATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGCCAGAAATGGCACATCTTGAGGTCACGGCANGTGGGGCGG
GGTTCTTGACCTCGGCCGCGACCAACGCT

FIG. 15W

16447.2.edit

AGCGTGGTCCGGCCGAGGTCAAGAAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTG
CCACTCTGGCTGGAAGAGTGGAGTACTGGATTGACCCCAACC.AAGGCTGCAACCTGGA
TGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCCGTGTACCCCACTCAGCCC
AGTGTGGCCCAAGAAGAACTGGTACATCAGCAAGAAACCCCAAGGACAAGAGGGCATGTCTGG
CTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCT
GCCGATGTGGACCTGCCCGGGCGGCCGCTCGA

16449.1.edit

AGCGTGGTCCGGCCGAGGTCTGT.CAGAGTGGCACTGGTAGAAGNTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAAGTGTG
CTGNAATGGGGCCCATGANATGGTTGNCTGAGAGAGAGCTTCTTGTCTACATTCCGGCGG
GTATGGTCTTGGCCTATGCCTTATGGGGGTGGCCGTTGNGGGCGGTGNGGTCCGCCTAAAA
CCATGTTCTCAAAGATCATTGTTGCCCAACTGGGTTGCTGACCANAAGTGCCAGGAA
GCTGAATACCATTTCCAGTGT.CATACCCAGGGTGGGTGACGAAAGGGGTCTTTGAAGTGT
GGAAGGAACATCCAAGATCTCTGNTCCATGAAGATTGGGGTGTGGAAGGGTTACCAAGTTG
GGGAAGCTCGCTGTCTTTTCTTCCAATCANGGGCTCGCTCTTCTGAATAATTCTTCAGGGC
AATGACATAAAATTGTATATTCCGTTCCCGGTTCCAGGCCAG

16450.1.edit

TCGAGCGGGCCCGGGCCGAGGTCCACCACACCCAAATTCCTTGCTGUTATCATGGCAGCCGC
CACGTGCCAGCATTACCGCTAGATCATCAAGTATGAG.AAGCCTGGGTCTCCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTGGTGT.CACAGAGGCTACTATTACTGCCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATGGCCTGAAGAATAATCAGAAGACCGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAACTGGTAACCCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAGACCCCTTTCGT.CACCCACCTGG
GTATGACACTGGAAATGGTATTACCTTCTGGCACTTCTGGTCAGCAACCCAGTGTGGG
CAACAAATGATCTTTGANGAATGCTNTTAGGCGGACCACACCGGCCACAACGGGCACC
CCCAT.AAGGCATAGGCCAAGAACAATCCCGNCGAATGTAGGACAAGAAGCTCTNTCTCAN
ACAANCATCTCATGGGCCCCAATCCANGACACTTCTGAGTACATCANTT.CATGGCATCCTG
GTGGCACTGATAAAAAACCTTACAGTTA

16450.2.edit

AGCGTGGTCCCGCCGAGGTCTGT.CAGAGTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAAGTGTG
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCTACATTCCGGCGGG
TATGGTCTTGGCCTATGCCTTATGGGGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAAAC
CATGTTCTCAAAGATCATTGTTGCCCAACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGT.CATACCCAGGGTGGGTGACGAAAGGGGTCTTTGAAGTGTG
GAAGGAACATCCAAGATCTCTGCTCAATGAAGATTGGGGTGTGGAAGGGTTACCAAGTTGG
GGAAGCTCGTCTGTCTTTTCTTCCAATCANGGGCTCGCTCTTCTGAATATTCTTCAGGGC
AATGACATAAAATTGTATATTCCGNTCCCGGTTN.CAGCCAATAATAAACCTCTGTGACA
CCANGCGGGGGCCCAAGGANCAT

FIG. 15X

16451.1.edit

AGCGTGGTCCGCGGCCGAGGTCCCTACCAGAGGTACCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCAT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGTCAATTCAGATGTGATTCATCTAGATGGTGCCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA

16451.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCATTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTGTATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCAGGATCATCCGTAGGTTGGTTCAAG
CCTTCGNTGACAGAGTTGCCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTTTCAGTGCCTCCACTATGATGTTGTAGGTGGTACCTCTGGTGAGGACCTCGGCCGCGAC
CACGCT

16452.1.edit

AGCGTGGCCGCGGCCGAGGTCCATTGGCTGGAACGGCATCAACTTGGAAGCCAGTGATCG
TCTCAGCCTTGGTTCTCCACCTAATGGTGAATGGNGGTCTCAGTAGCATCTGTACACAGGAC
CCTTCTTGGTGGCTGACATTTCTCCAGAGTGGTGACAACACCCCTGACCTGGTCTGCTTGT
AAAGTGTCTTAAGAATCATAGACAATCACTTCATAATTTGGCGNCCACCATAAGTCTTGATA
CAACCACGGAATGACCTGTCAAGGAAC

16452.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCCTCAGACCGGGTTCTGAGTACACAGTCAGTGTGGTTGC
CTTGACGATGATATGGAGAGCCAGCCCCGTGATTGGAACCCAGTCCACAGCTATTCTTGCA
CCAACTGACCTGAAGTTCACTCAGGTACACCCACAAGCCTGAGCGCCCAGTGACACCA
CCCAATGTTCACTCACTGGATAATCGAGTGGGGTGACCCCCAAGGAGAAGACCGGACCA
ATGAAAGAAATCAACCTTGCTCCTGACAGCTCATCCGTGGTTGTATCAGGACTTATGGCGG
CCACCAAAATATGAAGTGAGTGCTATGCTCTTAAGGACACTTTGACAAGCAGACCAGCTCA
GGGTGTTGTACCACTCTGGAGAAATGTCAGCCCACCAAGAAGGGCTCGTGTGACAGATGC
TACTGAGACCACCATCACCAATTAGCTGGAGAACCAAGACTGAGACGATCACTGGCTTCCA
AGTTGATGCCGTTCCAGCCAATGACCTCGGCCGCCACCACGCTT

FIG. 15Y

16453.1.edit

AGCGTGGTCCGGCCGAGGTCTGGCCGAAGTCCAGTGTACAGGGAAGATGTACATGTTA
TAGNTCTTCTCGAAGTCCCGGGCCAGCAGCTCCACGGGGTGGTCTCCTGCCTCCAGGCGCT
TCTCATTCTCATGGATCTTCTTCACCCGCAGCTTCTGCTTCTCAGTCAGAAGGTTGTTGTCC
TCATCCCTCTCATACAGGGTGACCAGGACGTTCTTGAGCCAGTCCCGCATGCGCAGGGGGA
ATTCGGTCAGCTCAGAGTCCAGGCAAGCGGGGATGTATTTGCAAGGCCCGATGTAGTCCA
AGTGGAGCTTGTGGCCCTTCTTGGTGCCCTCCAAGGTGCACTTTGTGGCAAAGAAGTGGCA
GGAAGAGTCGAAGGTCTTGTGTGTCATTGCTGCACACCTTCTCAAAGTCCGCAATGGGGGCT
GGGCAGACCTGCCCCGGCGGCCGCTCGA

16453.2.edit

TCGAGCGGCCCGCCGGGCAGGTCTGCCCAGCCCCATTGGCGAGTTTGAGAAGGNGTGCA
GCAATGACAACAAGACCTTCGACTCTTCTGCCACTTCTTTGCCACAAAGTGCACCCTGGA
GGGCACCAAGAAGGGCCACAAGCTCCACCTGGACTACATCGGGCCTTGCAAATACATCCC
CCCTTGCTGGACTCTGAGCTGACCGAATCCCCCTGCGCATGCGGGACTGGCTCAAGAAC
GTCCTGGTCACCCTGTATGAGAGGGATGAGGACAACAACCTTCTGACTGAGAAGCANAAG
CTGCGGGTGAAGAANATCCATGAGAATGANAAGCGCCTGNAGGCANGAGACCACCCCGT
GGAGCTGCTGGCCCCGGGACTTCGAGAACAACATAACATGTACATCTTCCCTGTACACTGG
CAGTTCCGCCAGACCTCGGCCCGGACCACCT

16454.1.edit

AGCGTGGNTCCGGACGACGCCACAAAGCCATTGTATGTAGTTTTANTTCAGCTGCAAAAN
AATACCNCCAGCATCCACCTTACTAACCAGCATATGCAGACA

16454.2.edit

TCGACCGGTCCCGCCGGCCAGGTCTGGCCGATAGCACCGGGCATAATTTGGAATGGATGA
GGTCTGGCACCTGAGCAGCCGAGCGAGCTTGGTCTTAGTTGACCAATTTGGCTAGGA
GGATAGTATGCAGCACGGTTCTGAGTCTGTGGGATAGCTGCCATGAAGNAACCTGAAGGA
GGCGCTGGCTGGTANGGGTTGATTACAGGCTGGGAACAGCTCGTACACTTGCCATTCTCT
GCATATACTGGNTAGTGAGGGGAGCSTGGCGCTCTTCTTTGCGCTGAGCTAAAGCTACATA
CAATGGCTTTGNGGACCTCGGCCCGGACCACGCTT

FIG. 15Z

16455.1.edit

TCGAGCGGCCGCCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACEATTGTATGACACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTGAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAAGTTGCCACGGTAACAACCTTTCCTCGAACCTTATGCCTCTGCTGGT
CTTCAAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCGGCCGCGA
CCACGCT

16455.2.edit

AGCGTGGTTTGGCGCCGAGGTCTCACCANAGGTGCCACCTACAACATCATAGTGAGGGC
ACTGAAAGACCAGCAGAGGCATAAGGTTTCGGGAAGAGGTTGTACCGTGGGCAACTCTGT
CAACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGNTTCCCAT
TATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAACTGTTGTGCCAGT
GCTTANGCTTTGGAAAGTGGTCATTCAGATGTGATTCACTANATGGTGTGATGACAATGG
TGNGAACTACAAGATTGGAGAGAACTCGNACCGTCAGGGGANAAAAATGGACCTGCCCGG
GCGGCNCGCTCGA

16456.1.edit

AGCGTGGTTCGCGCCCGAGGTCTGGCTTCTGCTCANGTGATTATCCTGAACCATCCAGGCC
AAATAAGCGCCCGCTATGCCCTGATTTGGATTGCCACACGGCTCACATTGCATGCAAGTT
TGCTGACCTGAAGGAAAACATTGATC

16456.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCAAATTGAAACAAACAGTTCTGAGACCGTTCTTCCACCA
CTGATTAAAGAGTGGCCGNGCGGGTATTAGCGATAATATTCAATTTAGCCTTCTGAGCTTTCT
GGCCAGACTTGGTGACCTTCCCAGCTCCAGCAGCTTCTGGTCCACTGCTTTGATGACACC
CACCGCAACTGTCTGTCTCATATCAGCAACAGCAAGCGACCCAAAGGTGGATAGTCTGA
GAAGCTCTCAACACACATGGGCTTCCCAGGAACCATATCAACAATGGGCAGCATCACCAG
ACTTCAAGAAATTTAAGGGCCATCTTCCAGCTTTTACCAGAACGGCGATCAATCTTTTCTT
CAGCTCAGCAAACTTGCATGCAATGTGAGCCG

FIG. 15AA

16459.1.edit

TCGAGCGGCGCGCGGCGGCGAGGTCCAGAGGGCTGTGCTGAAGTTTGCTGCTGCCACTGGAG
CCACTCCAATTGCTGGCGCTTCACTCCTGGAACCTTCACTAACCAGATCCAGGCAGCCTT
CCGGGAGCCACGGCTTCTTGTGGNTACTGACCCAGGGCTGACCACCAGCCTCTCACGGAG
GCATCTTATGTTAACCTACCTACCAATTGCGCTGTGTAACACAGATTCTCCTCTGCGCTATGT
GGACATTGCCATCCCATGCAACAACAAGGGAGCTCACTCAGNNGGGGTTTGATGTGGTGGA
TGCTGGCTCGGGAAGTTCTGCGCATGCGTGGCACCATTTCCTGTAACACCCATGGGANGN
CATGCCTGATCTGGACTTCTACAGAGATCCTGAAGAGATTGAAAAAGAAGAACAGGCTGN
TTGCTGANAAAGCAAGTGACCAAGGANGAAAATTCANGGGTGAAANGGACTGCTCCCGCT
CCTGAATTCACTGCTACTCAACCTGANGNTGCAGACTGGTCTTGAAGGNGNACANGGGCC
CTCTGGGCCTATTTAAGCANCTTCGGTCCGAACACGNT

16459.2.edit

AGCGTGNGTCGCGGCGGAGGTGCTGAATAGGCCACAGAGGGCACCTGTACACCTTCAGACC
AGTCTGCAACCTCAGGCTGAGTAGCAGTGAACCTCAGGAGCGGGAGCAGTCCATTACCCCT
GAAATTCCTCCTTGGNCACTGCCTTCTCAGCAGCAGCCTGCTCTTCTTTTCAATCTCTTCA
GGATCTCTGTAGAAAGTACAGATCAGGCAATGACCTCCCATGGGTGTTACGGGAAATGGTG
CCACGCATGCGCAGAACTTCCCGAGCCAGCATCCACCACATCAAACCCACTGAGTGAAGCT
CCCTTGTTGTTGCATGGGATGGGCAATGTCCACATAGCGCAGAGGAGAACTGTGTGTACAC
AGCGCAATGGTAGGTAGCTTAACATAAGATGCTTCCGCGAGAAGCTGGTGGTCAGCCCTG
GGGTCAAGTAACCAACAAGAACCCGTGGCTCCCGGAAGGCTGGCTGGATCTCGTTAGTGAA
GGNTCCAGGAGTGAAAGCGGCCAACAATTCGAGTGGCTTCAGTGGCAAGCAGCAAACTTCA
GCACAAGCCCTCTGGACCTGCCCCCGGCGCTCGA

16460.1.edit

TCGAGCGGCGCGCGGCGGCGAGGTCCAATTTCTCCCTGACGGNCCCACTTCTCTCCAATCTTGT
AGTTACACCAATTGTATGCCACCATCTAGATGAATCACATCTGAAATGACCACCTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTCAATCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAGCTGTGTAGGGGTCAAAGCAGAGTCAATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGCCCACGGTAACAACCTCCTCCCGAACCTTATGCCTCTGCTGG
GCTTTCAGNCCCTCCACTATGATGNTGTAGGGGGCCACCTCTGGNGANGACCTCGGCGCG
GACCACGT

16460.2.edit

AGCGTGGTCCGCGCGGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGCCTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAAACCAACCTACGGATCACTCGTGCTTTGACCCCTACACAGTTTCCCAT
ATGCCGTTGGAGATGACTGGGAACGAAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGGTCAATTCAGATGTGATTCATCTAGATGGTGGCATGACAATGG
NNGAACTACAAGATTGGAGAGAACTGCNACCGNACGGGAGAAAATGGACCTGCCCCGG
CGGCCGCTCGA

FIG. 15BB

16461.1.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCACTGCTCTCGCCGAACAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCACTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGNTGCAACCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGCCAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGNCGGGGG
NTTTTGGCGCTGCCCTCTGGNCTTCGGNTGTNCTCNATCTGCTGGCTCA

16461.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTCGCGGTGCGACTGGTGATGCTGGTCTGTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGCCCCCTGGTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCACGATGGTGGCCGCTACTACCGGGCTGATGAT
GCCAATGTGGTTCTGTGACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTGAGCCAG
CAGATCGAGAACATCCGGAGCCCAGAGGGCAGNCGCAAGAACCCCGCCCGCACCTGCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAA
GCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTA
CCCCACTCAGCCCAGTGTGCCCCAAAAGAACTGTTACATCAGCAAGAACCCCAAGGACAA
GAAGCATGTCTGGTTCCGGCAGAACATGACCGATGGATTCCAGTTCGAGTATGGCGGGCA
GGCTCCGACCCCTGCCGATCGGGACCTTGGCCCGCAACACGCT

16463.1.edit

ACCGTGGNNGCGGCCGAGGTATAAATAATCCAGNCCATAATCCTCCCTCCACACGCTGANAG
ATCAAGCTGTNCAAAGATCTCAGGGTGGANAAAACCAT

16463.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTTCAGACTTGGACTGTGTACACTGCCAGGCTTCCAG
GGCTCCAACCTTGCAGACGGCCTGTTGTGGGACAGTCTCTGTAAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAACACCAATGGTTTATCCACCTGAGATCTTTGAACAACCTTCATCT
CTCAGCGTGCGGAGGGAGGCTCTGGACTGGATATTTCTACCTCGGCCGCGACACGCT

FIG. 15CC

16464.1.edit

CGAGCGGGCGACCGGGCAGGTNCAGACTCCAATCCANANAACCATCAAGCCAGATGTCAG
AAGCTACACCAATCACAGGTTTACAACCCAGGCACTGACTACAAGANCTACCTGCACACCTTG
AATGACAATGCTCGGAGCTCCCCTGTGGTCAATCGACGCCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCTCGGCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGTACATCATCNAGTATGANAAGCCTGGGCCTCCTCCCAGAGAAGNG
GTCCCTCGGCCCCCGCCTGNTGTCCCANAGGNTACTATTACTGNGCCNGCAACCGGCAACC
GATATCNATTTTGNCAATTGGCCTTCAACAATAATTA

16464.2.edit

AGCGTGTTTCGCGGCCGANGTCCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCTTG
AACTGTAAGGGTTCTTCATCAGNGCCAAACAGGATGACATGAAATGATGTACTCAGAAGTG
TCCTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGNCTGTCTTTTCC
TTCCAATCAGGGGCTCGCTCTTCTGATTATTGTTCAAGGCAATGACATAAAATTGTATATTG
GGTCCCGGNTCCAGGCCAGTAATAGTANCCTCTGTGACACCAGGGCGGNGCCGAGGGACC
ACTTCTCTGGGAGGAGACCCAGGCTTCTCATACTTGATGATGTAACCGGTAACTCTGGCAC
GTGGCGGCTGCCATGATACCAGCAAGGAATTGGGGTGTGGTGGCCAGGAAACGCAGGTTG
GATGGNGCATCAATGGCAGTGGAGCCGTCGATGACCACAGGGGGAGCTCCGACATTGTC
ATTCAGGTG

16465.1.edit

AGCGTGGNCGCGCCCGAGGTGCAGC3CGGGCTGTGCCACCTTCTGCTCTCTGCCCCAAGCAT
AAGGAGGGTNCCTGCCCCCAGGAGAACAATAACTNTCCCCAGCTCGGCCTCTGCCGG

16465.2.edit

TCGAGCGGGCGGGCGGGCAGGTTTTTCTGAAAGTGGNTACTTTATTGGNTGGGAAAG
GGAGAAGCTGTGGTCAGCCCAAGAGGGAATACAGAGNCCCGAAAAAGGGGAGGGCAGGT
GGGCTGGAACCCAGACCCAGGGCCAGGCAGAACTTTCTCTCTCCTCCTGCTCAGCCTGGTG
GTGGCTGGAGCTCANAAAATTGGGAGTGACACAGGACACCTTCCCACAGCCATTGCGGCGG
CATTTATCTGGCCAGGACACTGGCTGTCCACCTGGCACTGGTCCCGACAGAAGCCCGAGC
TGGGGAAGTTAATGTTACCTCGGGGCGAGGAACCTCCTTATCATTTGNGCAGAGAGCAG
AAGGTGGCACAGCCCCGCGCTGCACCTCGGGCGGGACCAAGCT

16466.2.edit

TCGAGCGGGCGGGCGGGCAGGTCCACCATAAGTCTGTATACAACCACGGATGAGCTGCA
GGAGCAAGGTTGATTTCTTTCAATGGTCCGGNCTTCTCCTTGGGGGNCACCCGCACTCGAT
ATCCAGTGAGCTGAACAATCGGTGGCGTCCACTGGGCGCTCAGGCT

16467.2.edit

TCGAGCGGTTTCGCCCCGGCAGGTCCACCACACCCAAATTCCTTCTGCTGGTATCATGGCAGCCG
CCACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGCTCTCCTCCCAGAG
AAGCGGTCCCTCGGGCCCCGCGCTGCTCACAGAGGCTACTATTACTGGCCTGGAACCGGG
AACCGAATATACAAATTTATGTCAATTGNCTGAGAATAATCANNAANAGCGANCCCCCTGA
TTGGAAGGA

FIG. 15DD

06_16471.edit

AGCGTGGTCGCGGCCGAGGTCTGCTGCTTCAGCGAAGGGTTTCTGGCATAACCAATGATA
AGGCTGCCAAAGACTGTTCCAATACCAGCACCAGAACCCAGCCACTCCTACTGTTGCAGCAC
CTGCACCAATAAATTTGGCAGCAGTATCAATGTCTCTGCTGATTGCACTGGTCTGAAACTC
CCTTTGGATTAGCTGAGACACACCATTCTGGGGCCCTGATTTTCCTAAGATAGAACTCCAAC
TCTTTGCCCTCTAGCACATAGCCATCTGCTCGGTACACTGTCCCGGCCCTGAAGCGATGC
ACGCAAGAAGCTTGCCCTGCTGGAAGTCTCTCCAGGAGACTGCTGATTTTGGCATTCTT
TTTCCTTTCATCATATTTCTTCTGAATTTTTTAGATCGTTTTTTGTTTAAATCTCTTCTTCC
TCAGGAGTCAGCTTGGCCCCCGCCGCATCCACACAGTCCGTGTGCGGGGAGGTAACAAGA
AATACCGTGCCCTGAGGTTGGACGTGGGGAATTTCTCTGGGGCTCAGAGTGGTGTACTCG
TAAACAAGGATCATCGATGGTGNCTACAATGCATCTAATAACGAGCTGGGTGCGACCCA
AAGAACTGGNGAANAATGGATCGNCTCATCGACAGGACACCGTACCCGACAGGGGNA
CGANTCCCACTATGCGCTTGGCCCTGGGCCGCAANAAGGAAAACTGCCCGGGCGGCCNT
CGAAAGCCCCAATTNTGGAAAAATCCATCACACTGGGNGGCCNGTCGAGCATGCATNTAN
AGGGGCCCCATTCCCCCTNANN

07_16472.edit

TCGAGCGGCCCGCCCGGGCAGGTCCCCAACCAGGCTGCAACCTGGATGCCATCAAAGTCT
TCTGCAACATGGAGACTGGTGAGACCTGGGTGTACCCCACTCAGCCCAGTGTGGCCGAGA
AGAAGTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGTTCGGCGAGAGCA
TGACCGATGGATTCCAGTTCCAGTATGCGCGCCAGGGCTCCGACCCTGCCGATGTGGACCT
CGGCCGCGACACGCT

08_16472.edit

AGCGTGGTCGCGGCCCGAGGTCCACATCGGCAAGGTGCGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCAATGCTCTCGCCCAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGCCCACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTGTATGGCATCCAGGTTGCAGCCTTGGTTGGGGACCTGCCCG
GGCGGCCGCTCGA

09_16473.edit

TCGAGCGGCCCGCCCGGGCAGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCGCCCTGGTGTACACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATGCCCTGAAGAATAATCAGAAGAGCGAGCCCTGATTG
GAAGGAAAAAGACAGAGGCTTCCCCAACTGGTAACCTTCCACACCCCAATCTTTCATG
GACAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCGTACCCACCCCTGG
GTATGACACTGGAATGGTATTAGCTTCTTGGCACTTCTGGTCAGCAACCCAGTGTGGG
CAACAATGATCTTTGAGGAACATGGNTTATGGCGGACCACACCGCCCAACCGGCCACC
CCCATAAAGGCATAGGCCAAGACCATACCCGCGCAATGTAGGACAAGAAGCTNTNTNTCAN
ACACCATNTNATGGGCCCCATTCCAGGACACTTCTGAGTACATCAATTTATGNCATCTGTGG
CACTTGATGAAAACCCCTTACAGTTACGGCTTCTGGAACCTTTTACCAGGCCCTNTTACAGGAC
TNGGCCGGACNCCTTAAGCCNATTNACCCCTGGGGCGTTCTANGGTCCCACCTCGNNCACTG
GNGAAAAATGGCTACTGTN

FIG. 15FF

11_16474.edit

AGCGTGGTTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCAGGCAGAGTCTCTG
CGTTACAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGNGAACTCCNAGGACANG
AGGGCTAAATTCCATGAAGTTTGTGGATGGCCTGATGATCCACAATCGGAGACCCGTGTTAA
CTACTACCGTCTNACCNCCTGCTGTNCNCCCCNTTCTGCTNAANACATNGGGNTNNTNC
TTGNCNTCCTTGGGTNGAANAATNNAATNGCCTNCCCNTTCTNANCNTACTNGNTCCANA
NTTGGCCTTTAAANAATCCNCCTTGCCCTNNNCACTGTTCAANTNTTNTNNTCGTAAACCCCT
ATNANTTNATTANATNNTNNTNNTNCTCACCCCCCTCCTATTNANCCNATANGCTNNNA
ANTCCTTNANNCCTCCCNCCCNTNCTNCTACTNANTNCTTCTNNCCATTACNNAGCT
CTTTCNTTTAANATAATGNNGCCNNGCTCTNCAINTCTACNATNTGNNAATNCCCCCNCC
CCNANCGNNTTTTGGACCTNNNAACCTCCTTCTCTTCCCTNCAAAATNCCNNANTTCC
NCNTTCCNNTTTTGGGNTNNTCCCATNCTTCCANNCTTCACTCTANCNCTNCAACT
TATTTTCTTNTCATCCCTTNTTCTTACANNCCCCCTNNTCTACTCNCNNTTNCATTANAT
TTGAAACTNCCACNNTANTTNCCTCCTCTACNNTTTATTTTNCGNTCNCCTCTACNTAAT
ANTTTAATNANTTNTCN

12_16474.edit

TCGAGCGGGCGGGCGGGCAGGTCTGCCAAGGAGACCCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCAGGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAGGGCAGCATGATCTTACCTTGATGCCACAGCACACCCCTGTCTGAG
CAACACGTGGCGCACAAAGCAGTGTCAACGTAGTAAGTTAACAGGGTCTCCGCTGTGGATC
ATCAGGCCATCCACAACCTTCATGGAATAGCCCTCTGTCTCGGAGTTTCCAGACACCA
CAACCTCGCAGCCTTTGGGGCAGTCTCCATGATGAACCGCAGCACACCATAGCAGGCCCT
CCGCACAAGCAAGCCCTCCTAAGAAATTTGTAACGCANANACTCTGCTGCCAATGGCACAC
AAACCTCTAGTGCACCTCGGNCGGACCCACCC

13_16475.edit

TCGAGCGGGCGGGCGGGCAGGTCTGGTCCAGGATAGCCCTGCGAGTCCCTCTACTGCTACTC
CAGACTTGACATCATATGAATCATACTGGGGAGAATAGTTCTGAGGACCAGTAGGGCATG
ATTCACAGATTCCAGGGGGGGCCAGGAGAACAGGGGACCCCTGGTTGTCTGGAAATACCAG
GGTCACCATTTCTCCAGGAATACCAGGAGGGCCTGGATCTCCCTTGGGGCCTTGAGGTCC
TTGACCATTAGCAGGGCGAGTAGGAGCAGTTGGAGGCTGTGGGCAAACTGCACAACATTC
TCCAAATGGAAATTTCTGGGTTGGGGCAGTCTAAATCTTGATCCGTCACATATTATGTCAATC
CAGAGAACGGATCCTGAGTCACAGACACATATTTGGCATGGTTCTGGCTTCCAGACATCTC
TATCCGNCATAGGACTGACCAAGATGGGAACATCCTCCTTCAACAAGCTTNTGTTGTGCC
AAAAATAATAGTGGGATGAAGCAGACCGAGAAAGTANCCAGCTCCCTTTTGCACAAAGC
NTCATCATGTCTAAATATCAGACATGAGACTTCTTTGGCCAAAAAAGGAGAAAAAGAAAA
AGCAGTTCAAAGTANCCNCCATCAAGTTGGTTCTTGGCCNTTCAGCACCCGGGGCCCCGT
ATAAAACACCTNCGGGCCGACCCCTT

FIG. 15GG

14_16475.edit

AGCGTGGTCCGCGCCGAGGTGTTTTATGACGGGCCCCGGTGCTGAAGGGCAGGGAACAACACT
TGATGGTGCTACTTTGAACTGCTTTTCTTTTCTCTTTTGCACAAAGAGTCTCATGTCTGA
TATTTAGACATGATGAGCTTTGTGCAAAAGGGGAGCTGGCTACTTCTCGCTCTGCTTCATC
CCACTATTATTTTGGCACAACAGGAAGCTGTTGAAGGAGGATGTTCCCATCTTGGTCAGTC
CTATCCGGATAGAGATGTCTGGAAGCCAGAACCATGCCAAATATGTGTCTGTGACTCAGG
ATCCGTTCTCTGCGATGACATAATATGTGACGATCAAGAATTAGACTGCCCCAACCCAGAA
ATTCCATTTGGAGAAATGTTGTGCAGTTTGGCCACAGCCTCCAACCTGCTCCTACTCGCCCTCC
TAATGGTCAAGGACCTCAAGGCCCAAGGGAGATCCAGGCCCTCCTGGTATTCTTGGGAG
AAATGGTGACCCTGGTATTCCAGGACAACCAGGGTCCCCTGGTCTCCTGGCCCCCTGGA
ATCNGGNGAATCATGCCCTACTGGTCTCTCAAACATTCTCCANATGATTCATATGATGTC
AAGTCTGGGATAGCNAGTANGGANGGACTCGCAGGCTATTCTGGACCANACCTGCCGGGG
GGGCGTTGCAAAGCCCGAATCTGCANANNTNCNTTCACACTGGCGGGCGTCGAGCTGCTTT
AAAAGGGCCATTCCNCCTTTAGNGNGGGGGANTACAATTACTNGCGGGCGTTTTANANCG
CGNGNCTGGGAAAT

15_16476.edit

AGCGTGGTCCGCGCCGAGGTCCACATCGGCAGGGTCCGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCTGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGCGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTCCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTCCGGCGGGGT
TCTTGGCGGTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTGGCTCAGGCTCTTGAGGGTG
GTGTCCACCTCGAGGTACGGTCACGAACCACATTGGCATCATCAGCCCGGTAGTAGCGGC
CACCATCGTCAGCCTTCTCTTGANGTGGCTGGGOCAGGAAGTGAAGTCGAAACCAGCGCT
GGGAGGACCAGGGGGACCAANAGGTCCAGGAAGGGCCCCGGGGGGACCAACAGGACCAG
CATCACCAAGTGCGACCCCGGAGAACCCTGCCCGCCCGNCCGCTCGAA

16_16476.edit

TCGAGCGNNCGCCCGGGCAGGTCTCGCCTCGCACTCGTGATGCTGGTCTCTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTGGTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCAGGATGGTGGCCGCTACTACCGCGCTGATGAT
GCCAATGTGGTTGGTGACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTGAGCCAG
CAGATCGAGAACAATCCGGAGCCCGAGGGCAGCGCAAGAACCCCGCCCGCACCTGCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGACTGGAGAGTACTGGATTGACCCCAACCAA
GGCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGT
ACCCCACTCAGCCCACTGTGCCCCAGAAAGAACTGGTACATCAGCAAGAACCCCAAGGACA
AGAGGCAATGTCTGTTTCCGGAGAGCAAGACGATGGATTCCAGTTCGAGTATGGCGGCC
AGGGCTCCCAACCTGCCGATGTGGACCTCCGGCCCGACCAACCTT

FIG. 15HH

17_16477.edit

TNGAGCGGCGCCCGGGCAGGNTGNNAAACGCTGGTCCTGCTGGTCCTCCTGGCAAGGCTG
GTGAAGATGGTCAACCCTGGAAAACCCGGACCTGGTGAGAGAGGAGTTGTTGGACCAC
AGGGTGCTCGTGGTTTCCCTGGAACTCCTGGACTTCTGGCTTCAAAGGCATTAGGGGACA
CAATGGTCTGGATGGATTGAAGGGACAGCCCGGTGCTCCTGGTGTGAAGGGTGAACCTGG
TGCCCTGGTGAATAATGGAACTCCAGGTCAAACAGGAGCCCGTGGGCTTCTGGTGAGAG
AGGACCGTGTGGTGGCCCTGGCCCANACCTCGGCCGCGACCACGCTAAGCCCGAATTTCC
AGCACACTGGNGGCCGTTACTANTGGATCCGAGCTCGGTACCAAGCTTGGCGTAATCATG
GTCATAGCTGTTTCTGNGTGAAATTGTTATCCGCTCACAATTTACACANCATACGAAGC
CGGAAAGCATAAAGTGTAAGCCTTGGGGTGCTAATGAGTGAGCTAACTCNCAITAAATT
GCGTTGCGCTCACTGCCCCGCTTTTCCANNNGGGAACCNCTGGCNTNGCCNGCTTGCNTTAA
NTGAAATCCGCCNACCCCCGGGGAAAAGNCGGTTTGCNGTATTGGGGCNCTTTTCCCTTT
CCTCGGNTTACTTGANTTANTGGGCTTTGGNCGNTTCGGGTTGNGGGCGANCNGGTTCAACN
TCACNCCAAAGGNGGNAANACCGTTTTCCANAATCCGGGGGNTANCCCAANGNAAAAC
ATNNGNCNAANGGGCT

18_16477.edit

AGCGTGGTTNGCGGCGGAGGTCTGGGGCAGGGGCACCAACACGTCTCTCTCACCAGGAA
GCCCACGGGCTCCTGTTTGACCTGGAGTTCCATTTTACCAGGGGCACCAGGTTACCCCTT
CACACCAGGAGCACCGGGCTGTCCCTTCAATCCATNCAGACCAATTGTGNCCCCCTAATGCCT
TTGAAGCCAGGAAGTCCAGGACTTCCAGGGAACACCAGGAGCACCCCTGTGGTCCAACAAC
TCCTCTCTCACCAGGTGCTCGGGTTTTCCAGGGTGACCATCTTACCAGCCTTGCCAGGA
GGACCAGCAGGACCAGCGTTACCAACCTGCCCGGGCGGGCGCTCGA

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TCGAGCGGCGCCCGGGCAGGTCCAATTTCTCCCTGACGGTCCCCTTCTCTCCAATCTTGT
AGTTACACCAATGTCTATGCCACCATCTAGATGAATCACAATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCAGGATCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGCCACGGTAACAACCTTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCCTCCACTATGATGTTGTAGGTGGCACCTCTGOTGAGGACCTCGGCCGCGACC
ACGCT

22_16479.edit

AGCGTGGTCCGCGCGGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTCTGTTGACCCCTACACAGTTTCCCAT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTAGGCTTTGGAAGTGGTCAATTTCAAGATGTGATTCATCTAGATGGTGCCATGACAATGG
TGTGAACATAAGATTGGAGACAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGG
CCGGCCGCTCGA

FIG. 15II

24_16480.edit

TCGAGCGNNCGCCCCGGGCAGGTCCAGTAGTGCTTCGGGACTGGGTTCACCCCCAGGTCTG
CGGCAGTTGTACAGCGCCAGCCCCGCTGGCTCCAAAGCATGTGCAGGAGCAAATGGCA
CCGAGATATTCCTTCTGCCACTGTTCTCTACGTGGTATGTCTTCCCATCATCGTAACACGT
TGCCTCATGAGGGTCACACTTGAATTCCTTTTCGGTCCCAAGACATGTGCAGCTCATTT
GGCTGGCTCTATAGTTTGGGGAAAGTTTGTGAAACTGTGCCACTGACCTTTACTTCTCTCT
TCTTACTGGAGCTTTCGTACCTTCCACTTCTGCTGTTGGTAAAAATGGTGGATCTTCTATCA
ATTTCAATGACAGTACCCACTTCTCCCAAACATCCAGGGAAATAGTGATTTTCAGAGCGATT
AGGAGAACC AAAATTATGGGGCAGAAATAAGGGGCTTTTCCACAGGTTTCTTTGGAGGA
AGATTTCAAGTGGTGACTTTAAAAGAACTCAACAGTGTCTTCATCCCCATAGCAAAAGAA
GAAACNGTAAATGATGGAANGCTTCTGGAGATGCCNNCATTAAAGGGACNCCCAGAACTT
CACCATCTACAGGACCTACTTCAGTTTACANNAAGNCACATANTCTGACTCANAAAGGAC
CCAAGTAGCNCCATGGNCAGCACTTTNAGCCTTTCCCTGGGGAAAAANNTTACNTTCTTAA
ANCCTNGGCCNNGACCCCCCTTAAGNCCAAATTNTGGAAAAANTTCCNTNCCNCTGGGGGGC
NGTTCNACATGCNTTTNAAGGGCCCAATTNCCCN

25_16481.edit

TCGAGCGGCGCCCGGGGCAGGTGTCCGAGTCCAGCACGGGAGGGCTGGTCTTGTAGTTGT
TCTCCGGCTGCCCCATTGCTCTCCACTCCACGGCGATGTGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTACGGCTGACCTGGTCTTGGTCACTCTCTCCCGGGATGGGGGGCAGGTGTAC
ACCTGTGCTTCTCGGGGCTGCCCTTTGGCTTTCGAGATGGTTTCTCGATGGGGGGCTGGGA
GGGCTTTGTGGAGACCTTGCACCTTGTACTCTTGGCATTACAGCCAGTCTGGTGCAGGAC
GGTGAGGACGCTGACCACACGGGTACGTGCTGTTGTACTGCTCTCCCGCGCTTTGTCTTG
GCATTATGCACCTCCACGGCGTCCACGTACCAGTTGAACCTGACCTCAGGGTCTTCTGTGGC
TCACGTCCACCACCACCGCATGTAACCTCAGACCTCGGCCCGGACCAAGCT

25_16481.edit

ACCGTGGTCCGCGCCGAGGTCTGACCTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTCGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGCTCAGCGTCTCACCGTCTCTGCA
CCAGGACTGGCTGAATGCCAAGGAGTACAAGTCCAAGGTCTCCAACAAAAGCCCTCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAAGCCCCGAGAACCACAGGTGTACA
CCCTGCCCCCAATCCCGGGAGGAGATGACCAAGAACCAGGTGACCTGACCTGCCTGGTCA
AAGGCTTCTATCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGCGAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTCTGCACTCCGACACCTGCCCCGGCGGCGGCTCGA

27_16482.edit

TCGAGCGGCGCCCGGGGCAGGTGAAATGCTCTCTCGCTGACCACCCCGGTGCTGGTGGTGG
GTACAGAGCTCCGATGGGTGAAACCAATGACATAGAGACTGTCCCTGTCCAGGGTGTAGG
GGCCCAGCTCAGTGATCCCGTGGGTGAGCTGGCTCACCTTCCAGTACAGCCGCTCTCTGTC
CAGTCCAGGGCTTTTGGGGTCAAGCAAGGTGAGGTGCAAGACAGCATCCACTCTGGTGGCTGC
CCATCTTCTCAGGCTGACCAAGGTGAGTCTGCAACCAGAGTACAGAGACCTGACACT
GGTGTCTTGAACAAGGGCATAAGCAGACCTGAAGGACACCTCGGCCCGGACCAAGCT

FIG. 15JJ

28_16482.edit

AGCGTGGTCGCGGCCGAGGTGTCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGA TGCTGTCTGCACCCATCGTCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGGCATCACTGAGCTGGGCCCT
ACACCCTGGACAGGGACAGTCTCTATGTCAATGGTTTACCCATCGGAGCTCTGTATCCAC
CAECAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCGGGCGGCCGCTCGA

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ACGCTGGTTCGCGGCCGAGGTCTGTCAAGAGTGGCACTGGTAGAAGTTCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTA CTCAAGAAGTGTCT
CTGGAATGGGGCCCATGAGATGGTGTCTGAGAGAGAGCTTCTTGCTCTACATTCGGCGGG
TATGGTCTTTGGCCTATGCCCTATGGGGGTGCCGTTGTGGGCGGTGTGGTCCGCCCTAAAA
CATGTTCTCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCA TACCCAGGGTGGGTGACGAAAGGGGTCTTTTGAACGTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTCTCTCCAAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAAATGTATAATTCGGTCCCGTTCCAGGCCAGTAATAGTAGCCTCTGTGACAC
CAGGGCGGGGGCCGAGGACCCCTCTCTTGGAAAGAGACCAGCTTCTCATACTTGATGATGA
GNCCGGTAATCTTGGCACCTGGNGGTTCATGATNCCACCAAGGAAATNGGNGGGGGNG
GACCTCCCCGGCGGCCGTTCTNAAAGCCCAATTCCACACACTTGGNGGCCGTACTATGGATC
CCACTCNGTCCAACCTTCGNGGAATATGCCATAACTTTT

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TCGAGCGGGCGGGCGGGCAGGTCCTTGACCTTTTCAGCAAGTGGGAACGGTGTAAATCCGTCT
CCACAGACAAGGGCCAGGACTCGTTGTACCGGTGATGATAGAAATGGGGTACTGATGCCAA
CAGTTGGGTAGCCAAATCTGCAGACAGACACTGGCAACATTCGGGACACCCCTCCAGGAAGC
GAGAAATGCAGAGTTTCTCTGTGATATCAAGCACTTCAGGGTTGTAGATGCTGCCATTGTC
GAACACCTGCTGGATGACCAGGCCAAAGGAGAAGGGGGAGATGTTGAGCATGTTTCAGCAG
CGTGGCTTCGGTGGCTCCCACCTTGTCTCCAGTCTTGATCAGACCTCGGGCCGACCAACGCT

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AGCGTGGTCCGCGCCCGAGGCTCTGTCTACAGTCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGCCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCCAAATCTTGTGACAAAATCTACACAT
GCCCACCGTGCCCGAGCACCTGA.AACTCTGGGGGGGACCGTCAGTCTTCTCTTCCCCCGCAT
CCCCCTTCCA.AACCTGCCCGGGCGGGCGCTCG

FIG. 15KK

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CGAGCGGCGCGCGGGCAGGTTTGGAAAGGGGGATGCGGGGAAGAGGAAGACTGACGGT
CCCCCAGGAATTCAGGTGCTGGGCACGGTGGGCATGTGTGAGTTTTGTCACAAGATTGG
GCTCAACTCTCTTGTCCACCTTGGTGTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGTC
TGGGTGCCGAAGTTGCTGGAGGGCAGGTCACCACGCTGCTGAGGGAGTAGAGTCCTGAG
GACTGTAGGACAGACCTCGGCCGCGACCACGCT

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NGGNNGGTCCGGNCNGNCAGGACCACTCCTTCGAAATA

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AGCGTGGTCGCGGCGGAGGTCCTCACTTGCCTCCTGCAAAGCACCGATAGCTGCGCTCTGG
AAGCGCAGATCTGTTTTAAAGTCCTGAGCAATTTCTCGCACCAGACGCTGGAAGGGAAAGTT
TGCGAATCAGAAGTTCAGTGGACTTCTGATAACGTCTAATTCACGGAGCGCCACAGTACC
AGGACCTGCCCGGGCGGCCGCTCGA

42_16489.edit

TCGAGCGGCGCGCGGGCAGGTCCTCGTACTGNGCGGCTCGGTGAAATTAGACGTTATCA
GAAGTCCACTGAACCTTCTGATTGCGAAACTTCCCTTCCAGCGTCTGGTGCGAGAAATTGCT
CAGGACTTTAAAACAGATCTGCGCTTCCAGAGCGCAGCTATCGGTGCTTTGCAGGAGGCA
AGTGAGGACCTCGGCCGCGACCACCT

45_16491.edit

TCGAGCGGCGCGCGGGCAGGTCACATCGGCAGGGTCGGAGCCCTGCCCGCCATACTCG
AACTGGAATCCATCGGTCAATGCTCTCGCGGAACCAGACATGCCCTTTGTCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCACTCTTCCAGTCAGAGTGGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTCTTGACCTCGGCCGCGACCACGCT

FIG. 15LL

46_16491.edit

GTGGGNTTGAACCCNTTTNANCTCCGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCG
CCAGTGTGCTGGAATTCGGCTTAGCGTGGTCCGGCCGAGGTCAAGAACCCCGCCGCAC
CTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCC
CAACCAAGGCTGCAACCTGGAAGCCATCAAAAGTCTTCTGCAACATGGAGACTGGTGAGAC
CTGCGTGTACCCCACTCAGCCCAGTGTGGCCGAGAGAACTGGTACATCAGCAAGAACCC
CAAGGACAAGAGGCATGTCTCGTTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTA
TGGCGGCCAGGGCTCCGACCCTGCCGATGTGGACCTGCCCCGGCGGCCGCTCGA

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AGCGTGGTCCGGCCGAGGTCTGGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCAGTGTGCTGGGAGCAAG
TCTACAGCTACCATCAGCGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAAATTTCCATTAAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTTCAAGGACAACAGCATTAGTGTCA
AGTGGCTGCCCTTCAAGTTCCCTGTTACTGGTTACAGAGTAACCACCACTCCCCAAAAATGG
ACCAGGACCAACAAAACTAAAACTGCAGGTCCAGATCAAAACAGAAATGACTATTGAAG
GCTTGCAGCCACAGTGGAGTATGTGGTTAAGTGTCTATGCTCAGAAATCCAAGCGGAGAG
AAGTCAGCCTCTGGTTCAGACTGNAAGTAACCAACATTGATCGCCTAAAGGACTGGCATT
ACTGATGNGGATGCCGATTCGATCAAAATGNTTGGGAAAACCCACAGGGGCAAGTTTNC
ANGTCNAGGNGCAGCTACTCGAGCCCTGAGGATGCAATCCTTGACTNTTCTTNNCCTGAT
GGGGA.A.A.A.A.A.A.CCTT.N.A.A.A.A.CTTG.A.A.G.G.A.CCTG.C.C.C.G.G.C.C.G.T.N.C.A.A.A.A.C.C.C.A.A.T.T
CCACCCCTTGGGGCGCTTCTATGGGNCCTACTCGGACCAAACTTGGGGTAAN

48_16492.edit

TCGAGCGGGGGGGGGGGGGCAGGTCTTCCAGCTCTCCAGTGTCTTCTTCCACCATCAGGTGCA
GGGAATACCTCATGGATTCCATCTTCAGGGCTCGAGTAGGTCAACCTGTACCTGGAACTT
GCCCCTGTGGGCTTTCCCAAGCAATTTGATGGAATCGGCCATCCACATCAGTGAATGCCAG
TCCTTTAGGGCGATCAATGTTGTTACTGCACTCTGAACCAAGAGGCTGACTCTCTCCGCTT
GGAATCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTCCAGTTTACTTTTGTGTTGGTCTGCTGCAATTTTGGGAGTG
GTGGTTACTCTGTAACCAAGTAACAGCGGAACCTTGAAGGCAGCCACTTGACACTAATGCTGT
TGTCTGAACATCGGTCACTTCCATCTGGGATGGTTTGTCAAATTTCTGTTCCGTAATTAATG
GAAATTCGCTTGTGCTTGGGGGGCTTGTCTCCACGGCCAGTGACACCATACACAGTGATG
GTATAATCAACTCCAGGTTTAAAGCCGCTGATGGTAGCTGAACTTTGCTCCAGGCACAAGT
GAACTCCTGACAGGGCTA.TTTCCCTNCTGTTCTCCGTAAGTGATCCTGTAATATCTCACTGGG
ACAGCAGGANGCATTC.A.A.A.A.CTTCCGGCGNACCCCTAAGCCGAATTTNTGCAATATNC
ATCACACTGGCGGGCGCTCCANCA.TTCA.TT.A.A.A.A.GGCCCAATG.NCCCTATAGGGAGTNT
ANTACAATTNG

FIG. 15MM

49_16493.edit

TCGAGCGGCGCGCGCGGCGAGGTCACTTTTGGTTTTTGGTCATGTTGCGTTGGTCAAAGATA
AAAAGTAAAGTTTGAGAGATGAATGCAAAGGAAAAAATATTTTCCAAAGTCCATGTGAAA
TTGTCTCCCAATTTTTTGGCTTTTGAGGGGGTTGAGTTTGGGTGCTTGTCTGTTTCCGGGT
GGGGGGAAGTTGGTTGGGTGGGAGGGAGCCAGTTGGGATGGAGGGAGTTTACAGGAA
GCAGACAGGGCCAACGTCG

55_16496.edit

AGCGTGGTTCGCGGCGGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTGCGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGA TGACTCGTGCTTTGACCCCTACACAGTTTCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTAGGCTTTGGAAGTGGTCAATTCAGATGTGATTCATCTAGATGGTGCCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA

56_16496.edit

TCGAGCGGCGCGCGCGGCGAGGTCCAATTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTTGTATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTACGGGTCAAAGCAGGATCATCCGTAGGTTGCTTCAAG
CCTTCGTTGACAGAGTTGCCCCACGGTAACAACCTCTTCCCGAACCTTATGCCCTCTGCTGGT
TTTCAGTGCCCTCCACTATGATGTTGTAGCTGGCACCTCTGGTGAGGACCTCGGCGCGGACC
ACGCT

59_16498.edit

TCGAGCGGCGCGCGCGGCGAGGTCCACCATAAGTCTCTGATACAACCACGGATGAGCTGTCA
GGAGCAAGGTTGATTTCTTTCAATGGTCCGGTCTTCTCTCTTGGGGGTCAACCCGCACTCGATA
TCCAGTGAGCTGAACATTCGCTGCTGTCTCACTGGCGGCTCAGGCTTGTGGGTGTGACCTGA
GTGAACCTCAGGTCAGTTGGTGCAGGAATAGTGGTACTGCACTCTGAACCAGAGGCTGA
CTCTCTCCGCTTGGATTCTGAGCATAGACACTAACACATACTCCACTGTGGGCTGCAAGC
CTTCAATAGTCAATTTCTGTTTGATCTGGACCTGCAGTTTATGTTTGTGGTCTGCTCCAT
TTTTGGGAGTGGTGGTACTCTGTAACCAAGTAACAGGGGAACCTGAAGGCAGCCACTTGAC
ACTAATGCTGTTGTCTGAACA TCGGTCACTTGCATCTGGGATGGTTTGNCAAATTTCTGTTT
GGTAATTAATGGAAATTCGCTTGTCTTGGGGGCTGTCTCCACGGCCAGTGACAGCATA
CACAGNGATGGNATNATCAACTCCAAGTTTAAAGGCCCTGATGGTAACCTTAAACTTGTCTC
CAGCCAGNGAACTTCCGACAGGGTATTTCTTCTGGTTTTCCGAAAGNGANCCTGGAAATNN
TCTCTTGGANCAGAAAGGANCNTCCAAAACCTTGGGCCGGAACCCCTT

FIG. 15:NN

60_16473.edit

AGCGTGGTCCGCGGCCGAGGTCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAAACAGGATGACATGAAATGATGTACTCAGAAAGTGTG
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCTACATTCCGGCGGG
TATGGTCTTGGCCTATGCCCTTATGGGGGTGGCCCTTGTGGGCGGTGTGGTCCGCCTAAAC
CATGTTCTCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCTATCCCAAGGGTGGGTGACGAAAGGGGTCTTTTGAAGTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTCTTCCAAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAAATTGTATATTCCGTTCCCGGTTCCAGGCCAGTAATAGTAGCCTCTTGTGAC
ACCAGGCGGGGCCANGGACCACTTCTCTGGGANGAGACCCAGCTTCTCATACTTGATGAT
GTAACCCGGTAATCTGACAGTGGCGGCTGNCATGATACCANCAAGGAATTGGGTGNGGN
GGACCTGCCCCGGCGGCCCTCNA

60_16498.edit

AGCGTGGTCCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAAGATGCAAGTGACCGATGTTACAGGACAACAGCAATTAGTGTCA
AGTGGCTGCCCTTCAAGTTCCCTGTTACTGGTTACAGAGTAACCACCACTCCCAAAAATGG
ACCAGGACCAACAAAACTAAAAGTCCAGGTCCAGATCAAAACAGAAATGACTATTGAAG
GCTTGCAGCCACAGTGGAGTATGTGGTTAGTGTCTATGCTCAGAAATCCAAAGCGGAGAGA
GTCAGCCTCTGCTTCAGACTGCAGTAACCACTATTCTGCCACCAACTGACCTGAAGTTCAC
TCAGGTGACACCCACAAGCTTGAGCCGGCAGTGGACACCAACCAATGTTCACTCACTGGAT
ATCGAGTGGGGTGACCCCCAAGGAGAAAGACCCGGACCAATGAAAGAAATCAACCTTGCT
CCTGACAGCTCATCCGNGGGTGATCAGGACTTATGGGGGACTGCCCCGGCGNGGCCGNTC
GAAANGGAATTNTGAAATTTCTTCNCACTGGGNGGCCGNTTCGAGCTTNTNTANANGGC
CCAAATTCNCTNTAGNGGGTCTN

61_16499.edit

AGCGTGGTCCGCGGCCGAGGTCTNAGGA

62_16483.edit

TCGAGCCCCCGCCCCGGCCAGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCTCTCCAGAGA
AGTGGTCCCTCGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCTGGAACCGGGA
ACCGAATATACAATTTATGTCATTGGCCCTGAAGAATAATCAGAAGAGCGAGCCCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAACTGGTAACCTTCCACACCCCAATCTTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCGTCACCCACCCTGG
GTATGACACTGCAAAATGGTATTACGCTTCTGGCACTTCTGGTCAGCAACCCAGTGTGGG
CAACAATGATCTTTGAGCAACATGGTTTATGGGGGACCACACCGCCCAACCGGGCACC
CCATAAGGNATAGGCCAAGACCATACCCCGCGGAATGTAGGACAAGAAGCTCTNTCTCA
ACAACCATCTCATGGGCCCCATTCCAGGACACTTCTGAGTACATCATTTTCATGTCTCTG
GTGGGCACTTGATGAANAACCCCTTACAGTTCAAGGTTCTGGAACCTTCTACCAGNGCCACT
TCTGACAGGANCTTGGCGGNGACCCCT

FIG. 1500

63_16500.edit

AGCGTGGTTCGCGGCCGAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTG TAG
TTCACACCAATGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAAGC
CTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCAAC
GGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAGCC
TTCGTTGACAGAGTTGCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTCTT
TCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTGCCCGGGCGGCCG
GCTCGA

64_16493.edit

AGCGTGGTTCGCGGCCGAGGTGTGCCCCAGACCAGGAATTCGGCTTCGACGTTGGCCCTGTC
TGCTTCCTGTAAACTCCCTCCATCCCAACCTGGCTCCCTCCACCCAACCAACTTCCCCC
AACCCGGAACAGACAAGCAACCCAACTGAACCCCTCAAAAGCCAAAAAATGGGAG
ACAATTTACATGGACTTTGGAAAAATTTTTTCTTTGCATTATCTCTCAAACCTTAGTT
TTTATCTTTGACCAACCGAACATGACC.AAAAACCAAAAGTGACCTGCCCGGGCGGCCGCTC
GA

64_16500.edit

TCGAGCGCGCGCGCGCGGAGGTCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGG
CACTGAAAGACCAGCAGAGGCATAAGGTTGCGGGAAGAGGTTGTTACCGTGGGCAACTCTG
TCAACGAAGGCTTGAACCAACCTACCGATGACTCGTGCTTTGACCCCTACACAGTTTCCCA
TTATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAG
TGCTTAGGCTTTGGAAGTGCTCATTTACAGATGTGATTATCTAGATGGTGCCATGACAATG
GTGTGAACTACAAGATTGCAGAGAAGTGGGACCGTCAGGAGAAAAATGGACCTCGGCCG
CGACCACGCT

FIG. 15PP

16501.edit

TCGAGCGGCGCGCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTCACTGAACTT
CACCATCAACACCTGCGGTATGAGGAGAATGCAGCACCCCTGGCTCCAGGAAGTTCAA
CACCACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCACCACTGTTGGC
CCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACCTGAGAAACATGGGGCAGCCACTG
GAGTGGACGCCATCTGCACCCTCCGCTTGATCCCACTGGTNTCTGGACTGGACANANAGCG
GCTATACTTGGGAGCTGANCCNAACCTTTGGCGGNGACNCCNCTT

16501.2.edit

GAGGACTGGCTCAGCTCCCAGTATAGCCGCTCTCTGTCCAGTCCAGGACCAGTGGGATCAA
GGCGGAGGGTGCAGATGGCGTCCACTCCAGTGGCTGCCCCATGTTTCTCAAGTCTGAGCAA
AGNCAGTCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGGCTCTTGAACAGGGACCTGAG
CAGGCCCTGAAGGACCCCTCTCCGTGGTGTGAACTTCCTGGAGCCAGGGTGGCTGCATGTTT
TCCTCATACCGCAGGTTGTTGATGGTGAAGTTCAGTGTGAATGGCTCCTCGCTGACCACCC

16502.1.edit

AGCGTGGTCCGCGCGGAGGTCCACCACACCCAAATTCCTTGGTGGTATCATGGCAGCCGCCA
CGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGAA
GTGGTCCCTCGGCCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGAA
CCGAATATACAATTTATGTCAATGGCCTGAAGAATAATCAGAAAGAGCGAGCCCCTGATTGG
AAGGAAAAAGACAGACGAGCTTCCCAACTGGTAACCCCTCCACACCCCAATCTTCATGG
ACCANANANCTTGGATNGTCTTTCACNGGTTNAAAAAACCCCTTTTCGCCCCCCCCACCTTG
GGGATTAAACCTTGGGAAANGGGGATTTNACCNCTTC

16502.2.edit

TCGAGCGGCGCGCGCGGGCAGGTCTGTGAGACTGGCACTGGTAGAAGTTCAGGAACCCCT
GAACTGTAAGGGTTCTTCATCAGTCCCAACAGGATGACATGA.AATGATGTACTCAGAAGT
GTCCTGGAATGGCGCCCCATGAGATGGTGTCTGAGAGAGAGCTTCTTGTCTACATTGCGC
GGGTATGGTCTTGGCCTATGCCCTATGGCGGTGGCCGTTGTGGCGGTGTGGTCCGCCTAA
AACCATGTTCTCAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGG
AAGCTGAATACCATTTCCAGTGTATACCCAGGGNGGGTGACCAAAGCGGGTCNTTTNGA
CCTGGNGAAAGGAACCATCCAAAANCTCTGNCCCATG

FIG. 1500

16503.1.edit

AGCGTGGNCGCGGCCGAGGTCTGAGGATGTAAACTCTTCCCAGGGGAAGGCTGAAGTGCT
GACCATGGTGCTACTGGGTCTTCTGAGTCAGATATGTGACTGATGNGAACTGAAGTAGGT
ACTGTAGATGGTGAAGTCTGGGTGTCCCTAAATGCTGCATCTCCAGAGCCTTCCATCATT
CCGTTTCTTCTTTTGCTATGGGATGAGACACTGTTGAGTATTCTCTAAAGTCACCACTGAAA
TCTTCTCCAAAGGAAAACCTGTGGAAAAGCCCCCTTATTTCTGCCCCATAATTTGGTTCTCC
TAATCNCCTGAAATCACTATTTCCCTGGAANGTTTGGGAAAAANNGGGCNACCTGNCAN
TGGAAANTGGATANAAAAGATCCCACCATTTTACCCAACNAGCAGAAAGTGGGAANGGTAC
CGAAAAGCTCCAAGTAANAAAAAGGAGGGAAGTAAAGGTCAAGTGGGCACCAGTTTCAA
ACAAAACCTTCCCCAACTATANAACCCA

16503.2.edit

AAGCGGCCCGCCCGGGCAGGNNCAGNAGTGCCTTCGGGACTGGGNTCACCCCCAGGTCTGC
GGCAGTTGTACAGCGCCAGCCCCGCTGGCCTCCAAAGCATGTGCAGGAGCAAATGGCAC
CGAGATATTCCTTCTGCCACTGTTCTCTACGTGGTATGTCTTCCCATCATCGTAACACGTT
GCCTCATGAGGGTCACACTTGAATTCCTTTCCGTTCCCAAGACATGTGCAGCTCATTTG
GCTGGCTCTATAGTTTGGGGAAAGTTTGTGAACTGTGCCACTGACCTTTACTTCTCCTT
CTCTACTGGAGCTTTCCGTACCTTCCACTTCTGCTGNTGGNAAAAAGGGNGGAACNTCTTA
TCAATTTTATTGGACAGTANCCCNCTTTCTNCCCAAAACATNCAAGGGAAAAATATTGATTN
CNAGAGCGGATTAAGGAACAACCCNAATTATGGGGGCCAGAAATAAAGGGGGGCTTTTCCA
CAGGTNTTTTCT

16504.1.edit

TCGAGCGGCCCGCCCGGGCAGGTCTGCAGGCTATTGTAAGTGTTCTGAGCACATATGAGAT
AACCTGGGCCAAAGCTATGATGTTCCGATACGTTAGGTGTATTAAATGCACTTTTACTGCCA
TCTCAGTGGATGACAGCCTTCTCACTGACAGCAGAGATCTTCTCACTGTGCCAGTGGGCA
GGAGAAAGAGCATGCTGCCACTCGACCTCGCCCGCGACCACGCT

16504.2.edit

AGCGTGGTCCGGCCCGAGGTCCAGTCCAGCATGCTCTTCTCCTGCCCAGTGGCACAGTG
AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTCACTCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTTGGCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCCGGCGCCGCTCGA

FIG. 15RR

16505.1.edit

CGAGCGGCCGCCCCGGGCAGGTCCAGACTCCAATCCAGAGAACCACCAAGCCAGATGTCAG
AAGCTACACCATCACAGGTTTACAACCAGGCACTGACTACAAGATCTACCTGTACACCTTG
AATGACAATGCTCGGAGCTCCCCTGTGGTCAATCGACGCCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCTGCGCCACCACACCCAATTCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCAGAGAAGT
GGTCCCTCGGCCCCCGCCCTGGTGNCACAGAAGCTACTATTACTGGCCTGGAACCGGGAACC
GAATATACAATTTATGTCAATTGCCCTGAAGAATAATCANAAGAGCGAGCCCCCTGATTGGA
AGG

16505.2.edit

AGCGTGGTCGCGGCCGAGGTCCCTGTCAAGTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGCTCTCTTTCTTCCTTC
CAATCAGGGGCTCGCTCTTCTGATTATCTTCAGGGCAATGACATAAAATTGTATATTCCGTT
CCCCGTTCCAGGCCAGTAATAGTAGCCCTCTGTGACACCAGGGCGGGGCCGAGGGACCAT
TCTCTGGGAGGAGACCCAGGCTTCTCACTTGTATGATGTANCCGGTAATCCTGGCACCGT
GGCGGCTGCCATGATACCAGCAAGGAATTGGGTGTGGTGGCCAAGAAACGCAGGTTGGAT
GGTGCAATCAATGGCAGTGGAGGCGTCGATNACCACAGGGGAGCTCCGANCAATTGTCAITC
AAGGTGGACAGGTAGAACTTTGTAATCAGGTGCCCTGGTTTGTAAACCTG

16506.1.edit

TCGAGCGGCCGCCCCGGGCAGGTTTCTGACCGTGACCTCGAGGTGGACACCACCCCTCAAG
AGCCTGAGCCAGCAGATCGAGAACATCCGGAGCCAGAGGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCAACCAAGGCTCCAACCTGCAATGCCATCAAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCCGTGTACCCCACTCAGCCAGTGTGGCCCAAGAAGAACTGGTACATCAGCAAG
AACCCCAAGGACAAGAAGCATGTCTGGTTCCGGCGAAAGCATGACCGATGGATTCCAGTTC
GAGTATGGCGGCCAGGGCTCCGACCCCTCCGATGTGGACCTCCGCGCGACCAAGCTAAG
CCCGAATTCCAGCACACTGCCCGGCCCTTACTAGTGGGATCCGAGCTTCGGTACCAAGCTTG
CGGTAATCATGGGNCATACCTGTTTCTGNGTGAAAATGGTATTCCGCTTCACAAATTTCCC
AC

16506.2.edit

AGCGTGGTCCCGGCCGAGGTCCACATCGGCAGCGGTCCGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCACTCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTCATGGCATCCAGGTTCCAGCCTTCTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTACAGGCAGGTGCGCGCGGGT
TCTTGGCGCTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTGGCTCAAGCTCTTGAAGGT
GGTGTCCACCTCGAGGTCACGCTCAGGAACCTGCCCGGGCGCCCGCTCGA

FIG. 15SS

16507.1.edit

AGCGTGGTCCGCGCCGAGGTCAAGAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCA
GTGTGGCCCAAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGT
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCTG
CCGATGTGGACCTGCCCGNGCCGNGCCGCTCGAAAAGCCCNAAATTCAGNCACACTTGG
CCGCGCGTTACTACTG

16507.2.edit

TCGAGCGGCCGCGCCGGGCAGGTCCACATCGGCAGGGTCCGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCAATGCTCTCGCCGAACCAGACATGCCTCTTGCTCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGGCGG
GGTCTTGACCTCGGCCCGGACACGCT

16508.1.edit

CGAGCGGCCGCGCCGGGCAGGTCCCCCCCCCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
TT

16508.2.edit

AGCGTGGTCCGCGCCGAGGTCTGCCATTCTTCCGACTTCTCTCCAGCCGAGCTTCCCAGAA
CATCACATATCACTGCAAAAAATAGCAATGCATACATGGATCAGGCCAGTGGAAATGTAAA
GAAGGCCCTGAAGCTGATGGCGTCAAAATGAAGGTGAATTCAGGGCTGAAGGAAATAGCA
AATTCACCTACACAGTTCTGAGGATGGTTGGCAGGAAACACACTGGGGAAATGGAGCAAAA
CAGTCTTTGAATATCGAACAGCAAGGCTGTGAGACTACCTATTGTAGATATTGCACCCTA
TGACATTGGTGGTCTGATCAAGAATTTGGTGTGGACGTTGCCCTGTTTGCTTTTTATAAA
CCAACTCTATCTGAAAATCCCAACAAAAAAATTTAACTCCATATGTGNTCCTCTTGTCT
AATCTTGGCAACCAGTGCAGTGACCGACAAAATTCAGTTATTTATTTCCAAAAATGTTTG
GAAACAGTATAATTTGACAAAAGAAAAAGGATACTTCTCTTTTTTGGCTGGTCCACCAAA
TACAATTCAAAAGGCTTTTTGGTTTTATTTTTTANCCAAATTCAAATTCAAAATGTCTCAA
TGGNCTTATAATAAAATAAACTTTACCCCTTTTTNTGAT

FIG. 15TT

16509.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTTACAGGAAGTAACCACCACTCCCAAAATG
AGTGGCTGCCTTCAAGTTCCTGTTACTGGTTACAGAAAGTAACCACCACTCCCAAAATG
GACCAGGACCAACAAAACTAAACTGCAGGTCCAGATCAAACAGAAAATGGACTATTG
AAGGCTTGACAGCCACAGTGGAAGTATGTGGNTAGGNGTCTATGCTCAGAATCCCAAGCC
GGAGAAAGTCAGCCTTCTGGTTTAGACTGCAGTAACCAACATTGATCGCCCTAAAGGACT
GGNCATTCACTTGGATGGTGGATGTCCAATTC

16509.2.edit

TCGAGCGGCCGCGGCCGAGGTCTTGCAGCTCTGCAGNGTCTTCTTCACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTCAACCCTGTACCTGGAAACTT
GCCCCCTGTGGGCTTTCCCAAGCAATTTTGTATGGAATCGACATCCACATCAGNGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTGCAGTCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTGCAGTTTAAAGTTTTTGGTGGTCTGNCCTATTTTGGGAAG
TGGGCGGTTACTCTGTAACAGTAACAGGGGAACCTGAAGGCAGCCACTTGACACTAATG
CTGTTGTCTGAACATCGGTCACTTGCATCTGGGATGGTTTGACAATTTCTGTTCCGGCA
AATTAATGGAAATTGGCTTCTGCTTGGCGGGGCTGNCCTCACGGGCCAGTGACAGCATA
C

16510.1.edit

TCGAGCGGCCGCGGCCGAGGTCTTGCAGCTCTGCAGTGTCTTCTTCACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTCAACCCTGTACCTGGAAACTT
GCCCCCTGTGGGCTTTCCCAAGCAATTTTGTATGGAATCGACATCCACATCAGTGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTGCAGTCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTGCAGTTTAAAGTTTTTGGTGGTCTGNCCTATTTTGGGGA
GGGCTGGTTACTCTTGTAAACAGTAACAGGGGAACCTGAAGGCAGCCACTTGACACTAATG
CTGGTGGCCTGAACATCGGTCACTTGCATCTGGGATGGTTTGGTCAATTTCTGTTCCGGTAAT
TAATGGGAAATTGGCTTACTGGCTTGGCGGGGCTGTCTCCACGGNCAGTGACAAGCATA
ACAGGNGATGGGTATAATCAACTCCAGGTTTAAAGGCCNCTGATGGTA

16510.2.edit

AGCGTGGTCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGTAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTTACAGGAAGTAACCACCACTCCCAAAATGG
AGTGGCTGCCTTCAAGTTCCTGTTACTGGTTACAGAGTAACCACCACTCCCAAAATGG
GACCAGGACCAACAAAACTAAACTGCANGGTCCAGATCAAACAGAAAATGACTATTG
AAGGCTTGACAGCCACAGTGGAGTATGTGGGTTAGTGTCTATGCTCAGAAATNCCAAGCGG
AGAGAGTCAGCCTCTGGTTCAGACT

FIG. 15UU

16511.1.edit

TCGAGCGGCGCGCGCGGCGAGGTCAGCGCTCTCAGGACGTCACCACCATGGCCTGGGCTCT
GCTCCTCCTCAECCTCCTCACTCAGGGGACAGGGTCTTGGGCCCAGTCTGCCCTGACTCAG
CCTCCCTCCGCGTCCGGGTCTCCTGGACAGTCAGTCACCATCTCCTGCACTGGAACCAGCA
GTGACGTTGGTGCTTATGAATTTGTCTCCTGGTACCAACAACACCCAGGCAAGGCCCCCAA
ACTCATGATTTCTGAGGTCACTAAGCGGCGCTCAGGGGTCCCTGATCGCTTCTCTGGCTCC
AAGTCTGGCAACACGGGCTCCCTGACCGTCTCTGGGCTCCANGCTGAGGATGANGCTGATT
ATTACTGGAAGCTCATATGCAGGCAACAACAATTTGGGTGTTGGGCGGAAGGGACCAAGCT
GACCGTNTAAGGTCAAGCCCAAGGCTTGGCCCCCTCGGTCACTCTGTTCCCACCTCCTCT
GAAGAAGCTTTCAAGCCAACAANGNCACACTGGGTGTGTCTCATAAGTGGACTTTCTACCC

16511.2.edit

AGCGTGGTTCGCGGCGGAGGTCTGTAGCTTCTGTGGGACTTCCACTGCTCAGGCGTCAGGCT
CAGGTAGCTGCTGGCCGCGTACTTGTGTTGCTTTGNTTGGAGGGTGTGGTGGTCTCCACT
CCCGCCTTGACGGGGCTGCTATCTGCCCTCCAGGCCACTGTCACGGCTCCCGGGTAGAAGT
CACTTATGAGACACACCAGTGTGGCCTTGTGTTGGCTTGAAGCTCCTCAGAGGAGGGTGGGA
ACAGAGTGACCGAGGGGGCAGCCTTGGGCTGACCTAGGACGGTCAGCTTGGTCCCTCCGC
CGAACACCCAAATTTGTTGTTGCTTGCATATGAGCTGCAGTAATAATCAGCCTCATCCTCAGC
CTGGAGCCCAGAGACNGTCAAGGGAGGGCGGTGTTTGCCAAGACTTGAAGCCAGANAAG
CGATCAGGGACCCCTGAGGGCCCCCTTACNGACCTCAAAAAATCATGAATTTGGGGGGCC
TTTGCTGGGNGTTGGTTGGTNACCAGNAACAAAAATTTTCATAAAGCACCAACGTCCT
GCTGGTTTCCAGTGCANGAANAATGGTGAAGTGAANTGTCC

16512.1.edit

AGCGTGGTTCGCGGCGGAGGTCCAGCATCAGGAGCCCCGCTTGGCGGCTCTGGTCAATCGCC
TTTCTTTTGTGGCCTGAAACCATGTCTCAATTCGCACTAGCAGAACTGCCGTCTCCACTG
CTGTCTTATAAGTCTGCAGCTTCACAGCCAAATGGCTCCCATATGCCAGTTCTTTCATGTCC
ACCAAAGTACCCGTCTCACCAATTTACACCCAGGTCTCACAGTTCTCCTGGGTGTGCTTGG
CCCGAAGCGAGGTAAGTANACGGATGGTCTCTGCTCCACAGTTCTGGATCAGGGTACGAG
GAATGACCTCTAGGGCCTGGCCNACAAACCCCTGTATGGACCTGCCCCGGCGGGCCCCGCTC
GA

16512.2.edit

TCGAGCGGCGCGCGCGGCGAGGTCCATACAGGGCTGTTGCCAGGCCCTAGAGGNCATTCC
TTGTACCCTGATCCAGAACTGTGGGACGAGCACCATCCGTCTACTTACCTCCCTTCGGGGCC
AAGCACACCCAGGAGAACTGTGAGACCTGGGCTGTAAATGGNGAGACGGGTACTTTGGTG
GACATGAAGGAACCTGGGCGATATGGGACCCATGGCTGNGAAGCTGCANACTTATAAGACA
GCACTGGAGACGGCAGTTCTGCTACTGCGAATTCATGACATCGTTTCAGGCCACAAAAAG
AAAGGCGATGACCANAGCCCGCAAGCGCGGGCTTCTGATGCTGGACCTCGCCCCGGCGAC
CACGCTT

FIG. 15VV

16514.1.edit

AGCGTGGTCCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCAGGCAGAGTCTCTG
CGTTACAAAGTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCA.AAGGCTGCGAGGTTGTGGTGTCTGGGAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTAACTA
CTACGTTGACACTGCTGTGCGCCACGTGTTGCTCANACAGGGTGTGCTGGGCATCAAGGTG
AAGATCATGCTGCCCTGGGACCCANCTGGCAAAAAATGGCCCTTAAAAACCCCTTGCCNTG
ACCACGTGAACCAATTTGTGNGA.ACCCCAAGATGAANATACTTGCCCACCACCCCCCATTC

16514.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCAGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAGGGCAGCATGATCTTCACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGGCGCACAGCAGTGTCAACGTAGTAGTTAACAGGGTCTCCGCTGTGGATCAT
CAGGCCATCCACA.AACTTCATGGATTTAGCCCTCTGTCTCGGAGTTTCCCA.AAAACACCAC
AACCTCGCCAGCCTTTGGGCCCCACTTCTTCATGAATGAAACCGCAGCACACCAATTANCA
GGCCCTTCCGCACAGGNAAGCCCTTCTAAGGAGTTTGTAAACGC.AAAAAACTCTTGCT
GGGGCAAATGGGCACACAGACCTNTANTNGGACCTTGGNCCCGCAACCACCGCT

16515.1.edit

AGCGTGGTCCGCGGCCGAGGTCTGSCCCTCTGSCAAGGCTGCTGAAGATGGTCACCCTGG
AAAACCCCGACGACCTGCTGAGAGAGGAGTTGTTGGACCACAGGGTGCTCGTGGTTTCCC
TGGAACCTCCTGGACTTCTGCTTCA.AAGCCATTAGGGGACACAATGGTCTGGATGGATTG
AAGGGACAGCCCCGGTGGTCTCTGGTGTGAAGGCTGAACCTGGNGCCCCCTGGTGAAAATGGA
ACTCCAGGTCA.AACAGGAGCCCCGNGGGCTTCTGGNGAGAGAGGACGTGTTGGTGCCCCCT
GGCCCANACCTGCCCGGGCGGGCGCTCN.AAAAGCCGAAATCCAGNACACTGGCGGGCGNT
ACTANTGGAATCCGAACCTTGGTACCA.AAGCTTGGCCGTAATCATGGCCATAGCTTGTTC
CTGGGGNGG.AAA.TGGTATTCGCTNCCAATTCCACACAACATACCGA.ACCCCGAAAGCA
TT.AAAGTGT.AAAAGCCCTGGGGGGGGCTTAAATGANGTGAGCNTAACTCNCAATTTAATTGG
CGTTGCGCTTCACTGCCCGGCTTTTCCAGTCCGGGNA

16515.2.edit

TCGATCGGGCCCCCGGGCAGGTCTGGGCCAGGGGCACCAACACGTCCTCTCTCACCAGGA
AGCCCCAGGGCTCCTGTTTGAACCTGGAGTTCCATTTTACCAGGGGCACCAGGTTACCCCT
TCACACAGGAGCACCGGGCTGTCCCTTCAATCCATCCAGACCAATGTGNCCCTAATGCC
TTTGAAGCCAGGAAGTCCAGGAGTTCCAGGGAAACCACGAGCACCCCTGTGGTCCAACAAC
TCCTCTCTCACCAGGTGCTCCGGGTTTCCAGGCTGACCATCTTCACCAGCCTTGCCAGGA
GGGCCAGACCTCGGCGGGGACCAACCT

FIG. 15WW

16516.1.edit

ANCGTGGTCGCGGCCGAGGTCCTCACCAGAGGTGNCACCTACAACATCATAGTGAGGGCA
CTGAAAGACGANCAGAGGCATAAGGTTCCGGGAAGAGG

16516.2.edit

TCGAGCGGCCGCCCCGGGCAGGTCCAATTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCAATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACCTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTAGACATTCGTTCCCACTCATCTCCA
ACGGCATAAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGTCCACGGTAAACAACTCTTCCCGAACCTTATGCCTCTGTGGTC
TTTCAGTGCTCCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCNGNCCNGAAC
AACGCTTAAGCCCCGNATTCTGCAGAAATAATCCCATCACACTTGGCGGCCGCTTCGANCATG
CATNTAAAAGGGGCCCAATTTCCCCCTTAAGNGAANCCGTATTTNCCAAATTTCACTG
GNCCCGCCGNTTTTACAAACGNCGGTGAACCTGGGAAAAACCTGGCGGTTACCCAACCTT
TAATCGCCNTTGGCAGCACAAATCCCCCTTTTCGNCCANCNTGGGCGTAAATAACCGAAAA

16517.1.edit

ANCGNGGTGCGCGCCGANGTNTTTTCTTNTTTTT

16518.1.edit

AGCGTGGTCGCGGCCGAGGTCCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCCGCGGAGGAGCACTACAACAGCACGTACCGGGNGGTCAGCGTCCTCACCGTCTCTGCA
CCAGAAATTGTTGAATGGCAAGGAGTACAAGNGCAAGGTTTCCAAACAAGCCNTCCCAGC
CCCCNTCGAAAAAACCAATTTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCCGGAGGAAAAAGANCAANAACNCGTTACGCTTAACCTTGCTTGGTC
NAANGCTTTTTATCCCAACGNACTTCCCCNTGGAANTGGGAAAAACCAATGGGCCAANC
CGAAAAACAATTACAANAACCCC

16518.2.edit

TCGACCGCGCCGCCCCGGGCAGGTGTCCGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCAATGCTCTCCACTCCACGGCGATGTCCCTGGGATAGAAGCCTTTGAC
CAGGCAGGTACGGTGACCTGCTTCTGGTCACTCCTCCCGGATGGGGGCAGGGTGAA
CACCTGGGGTTCTCGGGGCTTGGCTTTGGTTTGAANATGGTTTCTCGATGGGGGCTGG
AAGGGCTTTGTTGNAACCTTCCACTTGACTCCTTGCCATTCACCCAGNCCTGGNCCAGGA
CGGNGAGGACNCTNACCACACGGAACCGGGCTGGTGGACTGCTCC

FIG. 15XX

16519.1.edit

AGCGTGGTCCGGGACGANGTCCTGTCAAGTGGNACTGGTAGAAGTTCCANGAACCCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGNGN
CCTGGAATGGGEGCCCATGANATGGTTGCC

16519.2.edit

TCGAGCGGCGCGCGGGCAGGTCCACCACACCCAAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCAGAGA
AGTGGTCCCTCGGCCCCGGCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAATTTATGTCAATGCCCTGAAGAATAATCAGAAGAGCGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCTTCCACAGTTCAAAAGACCCCTTTCCGGCACCCCCCTGG
GTATGAACCTGGGAAAANGGNANTTAANCCTTCTGGCA

16520.1.edit

AGCGTGGTCCGGGCGGAGGTCTGGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGCCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCAGATGCAAGTGACCGATGTTCAAGGACAAACAGCATTAGTGCA
AGTGGCTGCCTTCAAGGTNCCCTGGTACTGGGTACAGANTAACCACCCTCCAAAAATG
GACCAGGAACCACAAAACTTAAACTGCAGGGTCCAGATCAAAACAGAAATGACTATTGA
ANGCTTGACGCCACACTGGGAGTATGNGGGTAGTGNCTATGCTTCAGAATCCAAGCGGA
AAAANGTCAAGCCTTNTGGGTTCAA

16520.2.edit

TCGAGCGGCGCGCGCGGAGGTCTCCAGCTCTGCAGTGTCTTCTTCAACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTCAACCCTGTACCTGGAAACTT
GCCCCGTGGGGCTTTCCCAAGCAATTTGATGGAATCGACATCCACATCAGTGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTCCAGNCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAAGACACTAACCACATACTCCACTGTGGGCTCCAAACCTTCAATAANNC
ATTTCTGTTTGATCTGGACC

16521.2.edit

TCGAGCGGCGCGCGCGGAGGTCTGGTGGGGTCTGGCACACGCCACATGGGGGNGTTGNT
CTNATCCAGCTGCCAGCCCCCAATGGCGAGTTTGAGAAGGTGTGCAGCAATGACAACAA
NACCTTCGACTCTTCTGCTGCCACTTCTTTGCCACAAAGTGCACCCTGGAGGGCACCAAGAAG
GGCCACAAGCTCCACCTGGACTACATCGGGCCTTGCAAATACATCCCCCTTGGCTGGACT
CTGAGCTGACCGAATTCCTCCCTTGGCGATCGGGGACTGGCTCAAGAACCCTCTGGCACCC
TTGTATGANAGGGATGAAGACACNACCC

FIG. 15YY

16522.1.edit

AGCGTGGTTCGCGGCCGAGGTCTGTCTTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGGCCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
CCAGCAACACCAAGGTGGAC.AAGAGAGTTGAGCCCAAACTCTGTGACAAAACCTCACACAT
GCCCACCGTGGCCAGCACCTGAACTCCTGGGGGGACCGTCAGTCTTCTCTTCCCCCGCAT
CCCCCTTCCAAACCTGCCCCGGCGCCGCTCGAAAGCCGAATTCCAGCACACTGGCGGCCG
GTACTAGTGGANCCNAACCTTGGNANCCAACCTGGNGGAANTAAATGGGCATAANCTGTTTC
TGGGGGGAAATTGGTATCCNGTTTACAATTCCNCACAACATACGAGCCGGAAGCATAAA
AGNGTAAAAGCCTGGGGGNGGCCTANTGAAGTGAAGCTAAACTCACATTAATTNGCGTTG
CCGCTCACTGGCCCGCTTTTCCAGC

16522.2.edit

TCGAGCGGGCCCGCCGGGCAGGTTTGAAGGGGGATGCGGGGGAAGAGGAAGACTGACGG
TCCCCCAGGAGTTTCAAGTGCTGGGCACGGTGGGCATGTGTGAGTTTTGTGACAAGATTTG
GGCTCAACTCTCTTGTCCACCTTGGTGTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGT
CTGGGNGCCGAAGTTGCTGGAGGGCACGGTCACCACGCTGCTGAGGGAGTAGAGTCCTGA
GGACTGTANGACAGACCTCGGCCGNGACCACGCTAAGCCGAATTCTGCAGATATCCATCA
CACTGGCGGCCCGCTCCGAGCATGCATTTAGAGG

16523.1.edit

AGCGTGGNCGCGGACGANGACAACAACCC

16523.2.edit

TCGAGCGGGCCCGCCGGGCAGGNCCACATCGGCAGGGTTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTATGCTCTTGGCGAACCCAGACATGCCTCTTGTCTTGGGGTTCTT
GCTGATGNACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCA
GTCTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCC
AGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGACGTCACGGCAGGTGCGGGCGGG
GTTCTTGACCT

16524.1.edit

AGCGTGGTTCGCGGCCGAGGTCCAGCCTCCAGATAANGGTGAAGGTGGTGGCCCCGGACTT
CCAGGTATAGCTGGACCTCGTGGTAGCCCTGGTGAGAGAGGTGAAACTGCCCTCCAGGA
CCTGCTGTTTTCCCTGGTCTCCTGCACAGAAATGGTGAACCTGGNGGTAAAGGAGAAAGA
GGGGCTCCGGNTGANAAGGTGAAGGAGGCCCTCCTGNAATTGGCAGGGGCCCCANGACTT
AGAGGTGGAGCTGGCCCCCTGGCCCCGAAGGAGCAAGGGTGCTGCTGGTCTCCTGGG
CCACCTGG

FIG. 15ZZ

16524.2.edit

TCGAGCGGCCCGCCCGGGCAGGTCTGGGCCAGGAGGACCAATAGGACCAGTAGGACCCCTT
GGGCCATCTTTCCCTGGGACACCATCAGCACCTGGACCGCCTGGTTCACCCCTTGTCACCCTT
TGGACCAGGACTTCCAAGACCTCCTCTTTCTCCAGGCATTCTTGCAGACCAGGAGTACCA
NCAGCACCAGGTGGCCCAGGAGGACCAGCACCCCTTCTCCTTCGGGACCAGGGGGA
CCAGCTCCACCTCTAAGTCCTGGGGCCCCCTGCCAATCCAGGAGGGGCCTCCTTACCTTTCTC
ACCCGGAGCCCCTCTTCT

16526.1.edit

TCGAGCGGCCGCCCGGGCAGGTCCACCGGGATATTCGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGACAACCGGAGGCTGGAGAGCAAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGGTCAAGAGACTGGAGCCATTACTTCAAGATCATCGAGGACCT
GAGGGCTCANATCTTCGCAAACTGCGNAGCAATGCCCG

16526.2.edit

ATGCGNGGTGCGCGCCGANGACCANCTCTGGGTCATACTTGACTCTAAAGNCNTCACCAG
NANTTACGGNCATGTCCAAATCTGCAGAACGATGCGGGCAATTGTCCGCANTATTTGCGAAG
ATCTGAGCCCTCAGGNCCTCGATGATCTTGAAGTAANGGCTCCAGTCTCTGACCTGGGGTC
CCTTCTTCTCCAAGTGCTCCCGGATTTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAAGNCT
TCTC.ACTCTGTCCAGGA.AAAGAGGCCAGGCGGNGCATCAGGGCTTTTGCA TGGACT

16527.1.edir

AGCGTGGTCGCGCGCCGAGGTTGTACAAGCTTTT

16527.2.edic

TCGAGCGGCCCGCCCGGGCAGGTCTGCCAACACCAAGATTGGCCCCCGCCGCATCCACACA
GTTNGTGTGCGGGGAGGTAACAAAGAAATACCGTCGCGCTGAGGNTGGACGNGGGGAATTTT
TCCTGGGGCTCAGAGTGTGTACTCGTAAAAACAAGGATCATCGATGTTGTCTACAATGCAT
CTAATAACGAGCTGGTTCGTACCAACACCCCTGGTGAAGAATTGCATCGTGCTCATNGACA
GCACACCGTACCGACAGTGGGTACCGAAGTCCCCTATGCNCT

FIG. 15AAA

16528.1.edit

TCGAGCGGCCGCCCCGGGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGGCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAAATTTATGTCAATTGCCCTGAAG

16528.2.edit

AGCGTGNTCNCGGCCGAGGATGGGGAAGCTCGNCTGTCTTTTTCTTCCAATCAGGGGCTN
NNTCTTCTGATTATTCTTCAGGGCAANGACATAAAATTGTATATTCGGNTCCCGGTTCCAGN
CCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCCGAGGGACCACTTCTCTGGGAGGA
GACCCAGGCTTCTCATACTTGATGATGAAGCCGGTAATCCTGGCACGTGGGCGGCTGCCAT
GATACCACCAANGAATTGGGTGTGGTGGACCTGCCCGGGCGGGCCGCTCGAAAAANCCGAA
TTCTNTGCAAGAAATATCCATCACACTTGGGCGGGCCGNTCGAACCATGCATCNTAAAAGGG
CCCCAATTTCCCCCCTATTAGGNGAAGCCNCATTTAACAAATTCCACTTGG

16529.1.edit

TCGAGCGGCCGCCCCGGGCAGGTCTCGCGGTGCACTGGTGATGCTGGTCTCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTGGTCTCTCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCACGATGGTGGCCGCTACTACCGGGCTGATGAT
GCCAATGTGGTTCTGTACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTTGAGCCA
GCAGAAATCGAAAAACATTCCGAACCCAAGAAAGGGCAAGCCCGCAAAGAAACCCCGCCCCG
ACCTGGCCGNGAACCTCCAAGAAAGTGCCCACTCTTGAAGTGGGAAAAAAAGGGAAAAANT
ACTTGGAATTGGAC

16529.2.edit

AGCGTGGTCCCGCCCCGAGGTCCACATCGGCAGGGTCCGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCAATGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAAAGTGGCACATCTTGAGGTACGGCAGGGTGCCGGCGGG
GTTCTTGGGGCTGCCCTTCTGGGCTCCCGGAATGTTCTNNGAACTTGCTGG

FIG. 15BBB

16530.1.edit

AGCGTGGTTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGGGAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTAACTA
CTACGTTGACACTTGCTTGTCGCCACGTGTTGCTCANACANGGGTGGGCTGGGCATCAAG
GNG

16530.2.edit

TCGAGCGGCCGCGCCGGGCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCAACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCACGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCAGGGCAGCATGATCTTCACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGGCGCACAGCAAGTGTCAACGTAAGTAAGTTAACAGGGTCTCCGCTGTGGAT
CATCAGGCCATCCACAACTTCATGGATTAAACCCTCTGTCCTCGGAG

16531.1.edit

TCGAGCGGCCGCGCCGGGCAGGTCTTTCAGAGGTCCAAAGGTCCACTGTGGAGGTCCCAGG
AGTCTGGTGGTGGGCACACAGGTCCGATGGGTGAAACCATTGACATAGAGACTGTTCT
GTCCAGGGTGTAGGGGCCCCAGCTCTTTCATGCCATTGGCCAGTTGGCTCAGCTCCCAGTAC
AGCCGCTCTCTGTTGAGTCCAGGGCTTTTGGGTCAAGATGATGGATGCAGATGGCATCCA
CTCCAGTGGCTGCTCCATCCTTCTCGGACCTGAGAGAGGTGAGTCTGCAGCCAGAGTACAG
AGGGCCAACTGCTGTTCTTTGAATA

16531.2.edit

AGCGTGGTTCGCGGCCGAGGTCTGTAAGCTGAGCTAAGCAAACTGACCAATGACATTGAAG
AGCTGGGCCCCCTACACCCTGGACAGGAACAGTCTCTATGTCAATGGTTTCACCCATCAGAG
CTCTGTGNCCACCACCAGCACTCTGGGACCTCCACAGTGGATTTCAGAACCTCAGGGACT
CCATCCTCCTCTCCAGCCCCACAATTAAGCTGCTGGCCCTCTCCTGGTACCAATTCACCT
CAACTTCACCATCAACCAACCTGCAGTATGGGGAGGACATGGGTACCCCTGNCTCCAGGAA
GTTCAACACCACA

16532.1.edit

TCGAGCGGCCGCGCCGGACAGGTCTGGCGGGATAGCACCGGCCATAATTTGGAATGGATGA
GGTCTGGCACCCCTGAGCAGTCCAGCGAGCACTTGGTCTTAGTTGAGCAATTTGGCTAGGAG
GATAGTATGCAGCACGGNTCTGAGNCTGTGGGATAGCTGCCATGAAGTAACCTGAAGGAG
GTGCTGCCTCGTANGGGTTGATTACAGCGTTGGGAACAGCTCGTACACTTGCCATTCTCTG
CATATACTGGTTAGTGAGGTGAGCCTGGCCCTCTTCTTTTG

FIG. 15CCC

01_16558.3.edit

AGCGTGGTCGCGGGCCGAGGTGAGCCACAGGTGACCGGGGCTGAAGCTGGGGCTGCTGGNC
CTGCTGGTCCTG

02_16558.4.edit

CAGCNGCTCCNACGGGGCCTGNGGGACCAAACAAACACCGTTTTACCCCTTAGGCCCTTTGGC
TCCTCTTTCTCCTTTAGCACCAGGTTGACCAGCAGCNCCANCAGGACCAGCAAATCCATTG
GGGCCAGCAGGACCGACCTCACCACGTTACACAGGGCTTCCCCGAGGACCAGCAGGACCA
GCAGGACCAGCAGCCCCAGCTTCGCCCCGGTCACCTGTGGCTCACCTCGGCCCGGACCACG
CT

03_16535.1.edit

TCGAGCGGTGCGCCCGGGCAGGTCCACCGGGATAGCCGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGANAACCGGAGGCTGGANAGCAAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGGTCAGAGACTGGAGCCATTACTTCAAGATCATCGAGGGA
CCTGGAGG

04_16535.2.edit

AGCGNGGTGCGCGGGCCGAGGTCCAGCTCTGTCTCATACTTGACTCTAAAGTCATCAGCAGCA
AGACGGGCATTGTCAATCTGCAGAACCATGCGGGCATTGTCCGCAGTATTTGCGAAGATCT
GAGCCCTCAGGTCTCGATGATCTTGAAGTAATGGCTCCAGTCTCTGACCTGGGGTCCCTT
CTTCTCCAAGTGCTCCCGCAATTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAGGCTCCTCA
CTCTGTCCACGTAAGAAGGCCCCAGGCGGTCTTCAGGCTTTGCATGGTCTCCTTCTCGTTCT
GGATGCCTCCCATTCCTGCCAGACCC

05_16536.1.edit

TCGAGCGGGCCCGCCCGGGCAGGTCAAGGAAGCACATGGTCTTAGAGCCACTGCCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGAGTGCCAGAAAGGGAAGCAGGTCAAACCTGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACSTGAGCAAGGTCAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTTCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGCTGTTGAACCTTCCTGGAACCAGGGTGTTGCAATGTTTTCTCATAATGCAAGGTTG
GTGATGC

FIG. 15DDD

07_16537.1.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCACTGCTCTCGCCGAACCAGACATGCCTCTTGTCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACCGCAGGTCTCACCAG
TCTCCATGTTGCAGAAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCA
GTA CTCTCCACTCTTCCAGTCAGAA GTGGGCACATCTTGAGGTCACCGGCAGGTGCCGGGC
CGGGGGTTCTTGC GGCTT GCCCTCTGGGCTCCGGATGTTCTCGATCTGCTTGGCTCAGGCTC
TTGAGGGTGGGTGTCCACCTCGAGGTCACGGTCACCGAAACCTGCCCCGGGCGGCCCGCTC
GA

08_16537.2.edit

TCGAGCGGTGCCCCGGGCAGGTTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAG
AGCCTGAGCCAGCAGATCGAGAACATCCGGAGCCCAGAGGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGGGCCAGAAAGAACTGGTACATCAGCA
AGGAACCCCAAGGACAAGAGGCCATTGTCTTGGTTCCGGCGAGNAGCATGACCCGATGGATT
CCAGTTTCGAGTATTGGCGGCCAGGGCTTCCCGACCCTTGCCGATGTGGACCTCGGCCGCG
ACCACCGCT

FIG. 15EE

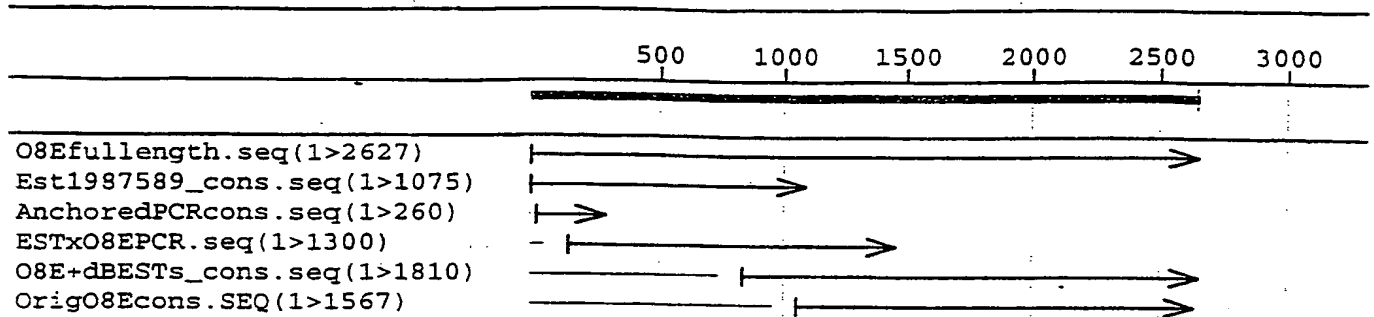


Fig. 1b

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LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT,
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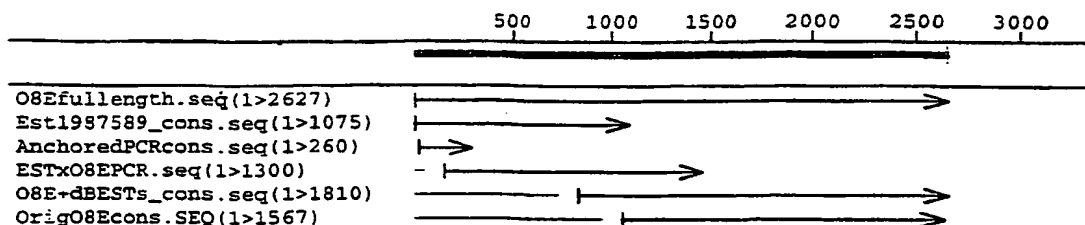
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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER



(57) Abstract: Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

WO 00/36107 A3

INTERNATIONAL SEARCH REPORT

Inter national Application No
PCT/US 99/30270

A. CLASSIFICATION OF SUBJECT MATTER

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G01N33/68 C07K16/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K C12Q G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	K. ISHIKAWA ET AL.: "Prediction of the coding sequences of unidentified human genes. The complete sequences of 100 new cDNA clones from brain which can code for large proteins in vitro." DNA RES., vol. 5, 1998, pages 169-176, XP002121149 the whole document --- -/--	3,4,6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

15 May 2000

Date of mailing of the international search report

17. 08. 2000

Name and mailing address of the ISA

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Authorized officer

Hix, R

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/30270

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MA J ET AL: "USE OF ENCAPSULATED SINGLE CHAIN ANTIBODIES FOR INDUCTION OF ANTI-IDIOTYPIC HUMORAL AND CELLULAR IMMUNE RESPONSES" JOURNAL OF PHARMACEUTICAL SCIENCES,US,AMERICAN PHARMACEUTICAL ASSOCIATION. WASHINGTON, vol. 87, no. 11, November 1998 (1998-11), pages 1375-1378, XP000877492 ISSN: 0022-3549 the whole document</p> <p>---</p>	
A	<p>GILLESPIE A M ET AL: "MAGE, BAGE AND GAGE: TUMOUR ANTIGEN EXPRESSION IN BENIGN AND MALIGNANT OVARIAN TISSUE" BRITISH JOURNAL OF CANCER,GB,LONDON, vol. 78, no. 6, September 1998 (1998-09), pages 816-821, XP000892404 ISSN: 0007-0920 the whole document</p> <p>---</p>	
A	<p>PEOPLES G E ET AL: "OVARIAN CANCER-ASSOCIATED LYMPHOCYTE RECOGNITION OF FOLATE BINDING PROTEIN PEPTIDES" ANNALS OF SURGICAL ONCOLOGY,US,RAVEN PRESS, NEW YORK, NY, vol. 5, no. 8, December 1998 (1998-12), pages 743-750, XP000892412 ISSN: 1068-9265 the whole document</p> <p>---</p>	
A	<p>BOOKMAN M A: "BIOLOGICAL THERAPY OF OVARIAN CANCER: CURRENT DIRECTIONS" SEMINARS IN ONCOLOGY,US,BETHESDA, MD, vol. 25, no. 3, June 1998 (1998-06), pages 381-396, XP000892403 the whole document</p> <p>---</p>	
A	<p>KOEHLER S ET AL: "IMMUNOTHERAPIE DES OVARIALKARZINOMS MIT DEM MONOKLONALEN ANTI-IDIOTYPISCHEN ANTIKOERPER ACA125 - ERGEBNISSE DER PHASE-LB-STUDIE. IMMUNOTHERAPY OF OVERIAN CARCINOMA WITH THE MONOCLONAL ANTI-IDIOTYPE ANTIBODY ACA125 - RESULTS OF THE PHASE LB STUDY" GEBURTSHILFE UND FRAUENHEILKUNDE,XX,XX, vol. 58, no. 4, April 1998 (1998-04), pages 180-186, XP000892407 ISSN: 0016-5751 the whole document</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/30270

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 18 to 20, 27, 28, 35 to 41, 46 to 48 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-68 (partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-68 {partially}

An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein and encoded by SEQ ID NO:1, expression vectors comprising said polynucleotide, host cells transformed by said vector, pharmaceutical compositions and vaccines comprising the polypeptide encoded by said polynucleotide according to claims 9 to 17, 23 to 25 and 29 to 34, and methods of using said polynucleotides for the treatment and/or diagnosis of ovarian cancer and diagnostic kits comprising said polynucleotide.

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